GAS JOURNAL

Vol. 255 September 1, 1948 No. 4448

SOUTH WALES GAS GRID

YEARS before the new Gas Act it was realized that the future progress of the gas industry would lie primarily in a much greater measure of integration of units, large and small. Indeed, during the past decade or so much has in fact been done, in face of difficulties in this direction and much thought has been devoted to the problem. The Gas Act, by sweeping away out-of-date legislation in one fell swoop, will at the same time sweep away a whole series of irritating obstacles ; and behind all is not the menace but the force of compulsion. Voluntary integration in the past will serve as foundation on which integration can be planned more widely and accomplished more speedily. But whether or not a local unit loses its identity in an Area Board, the local gas engineer is and will remain in the best position to appreciate the needs of his district ; and when neighbouring engineers foregather for discussion they can pool their ideas and put forward schemes for regionalization aimed at wider and better service to the consumer. In this regard the report of the South Wales (Western District) Working Party —summarized elsewhere in this issue—in which comprehensive recommendations are made for the establishment of a Gas Grid Authority for that area and the immediate development of a gas grid by means of which coke oven gas from existing and future coke oven plants may be made readily available to the local gas undertakings whose demands are outstripping their manufacturing capacity, is of first interest and high significance. Here is a good scheme, not imposed on the South Wales gas industry from above, but evolved as the ultimate result of a meeting just under two years ago of representatives of the local undertakings. The meeting was called by the Ministry of Fuel and Power, but the Working Party was appointed by the representatives of the gas undertakings themselves. Its five members are men of mature experience, and in their deliberations they have had the advantage of the help and advice of some of their own colleagues and also of officials of the National Coal Board and the Ministry of Fuel and Power.

Their report, which has been delayed through circumstances beyond their control, has now been submitted to the gas undertakings concerned and to the Ministry of Fuel and Power, by whom it is being considered. A great deal of the exploratory work was done before the Gas Bill was introduced, and the report was, in fact, completed before the Bill became an Act. It impresses us as an excellent example of how a supply problem can be approached voluntarily and impartially at something below Area Board level (for the Gas Act places the whole of Wales under one Area Board). It is not for us to prejudge any decision the Ministry may reach on the report, but studying the scheme purely as an economic proposition to apply the gas grid principle to a district sorely in need of an assured increased gas supply we feel it is one to be warmly commended. We are well aware that the Working Party has had some difficult problems to solve, but these problems have been tackled from the right angle, and we know that the work of the Convenor, Mr. E. M. Edwards, has been warmly appreciated.

The estimated cost of the first stage of the recommended scheme is £1,344,570, and the proposals envisage a second stage, a later consideration of the needs of undertakings in the extreme West Wales area, and provisions for extending the proposed grid mains to the Eastern area of South Wales and to the Aberdare and Merthyr district. The development of the bulk gas supply scheme will tend to reduce the number of men engaged on operations within gas-works, but it should also free responsible men to devote much needed attention to the distribution and district departments of the various sub-areas. At an early stage the Working Party considered preliminary proposals for the financing and administration of the contemplated gas grid project, but having regard to the Gas Act it does not propose to submit recommendations on these matters, since under nationalization the question of finance, organization, administration, and operation of any gas grid scheme which may be adopted will be the responsibility of the Area Gas Board.

COKE STOCKS

THE recent issue of a General Direction allowing coke to be supplied without licence in the summer period up to the maximum annual allocation was misleading to the extent that it gave an impression that current abnormal stocks were to be dissipated without due regard to longer-term requirements. It is true that, temporarily at all events, there are larger stocks of coke in this country than there have been for a long time. Last year's fuel crisis and the insistence of the Ministry of Fuel and Power on maximum production of water gas created a situation in which supplies of coke were wholly inadequate to meet the demands of the recognized markets. In the autumn the gas coke industry pressed for a relaxation, if not a reversal, of the maximum water gas production policy. Almost at the same time the world fuel oil position led not only to a slowing down of industrial coal-to-oil conversions but to a review of the gas oil situation, and these factors combined to persuade the Ministry to appeal to the gas industry to use a minimum, instead of a maximum, of coke for water gas manufacture and to produce as much coke as possible for the domestic and industrial market.

Then came the milder winter, and coke stocks overtook the (still rigidly controlled) demand. Allocations to small industries were raised and the domestic allowance was increased from 34 to 40 cwt. per annum. A little later, domestic consumers were told they could—by licence—take the whole year's delivery during the summer ; eventually the need for a licence was waived, though the 12 months' aggregate of 40 cwt. remained. Programming has continued for all except domestic consumers, and thousands of tons of coke have accumulated. The surpluses are by no means uniform throughout the country ; holiday resorts, for

example, with their summer seasonal peak gas loads, have piled up coke stocks in the last few weeks more rapidly than those areas where the winter brings the peak demand.

Coke exports were resumed in May, and Britain is now shipping to Europe—mainly the Scandinavian countries—at as high a rate as at any time in the history of the industry. Seasonal fluctuations due to some industries taking more coke in the winter than in the summer are inevitable, but by and large there is not what might be officially described as a "glut" of coke; it is rather a matter of an unbalanced stocking position. As regards the forward position, coal production is not going up as well as the Government hoped, and so long as output falls short of the target there remains the possibility that the gas industry may not get all the coal it has been programmed to receive, in which event a substantial reserve of coke would be an invaluable standby. With regard to future exports, the British gas coke industry is now directly represented on the Coal Committee of the Economic Commission for Europe. The Committee is programming all solid fuel supplies imported into the Continent and moved from one country to another. This system of central control ensures that each country gets as nearly as possible the quantity and quality of fuel it needs. British gas coke has taken its proper place among the fuels on the Continental market, and the available supplies are going to the different countries. There is no free market for coke on the Continent, any more than there is in this country. The gas industry produces some 9½ mill. tons of coke annually; at £4 a ton this represents a total of £38 mill., or nearly a third of the industry's total revenue. The 1¼ mill. tons shipped overseas yields about £5½ mill. There was a time when foreign markets would accept almost any grade of fuel, but consumers have become more discriminating, and only good quality coke is needed today. If the export market is to be retained, the industry must do all possible to produce coke of the right quality, and, as a corollary to this, it must, in the national interest, continue to press its proper claims to be supplied in the first instance with coals which will produce acceptable cokes. Finally, even at the expense of the home consumer—which is a sorry thought—the quality claims of the export market must have priority.

AUTUMN RESEARCH MEETING

Preliminary notice has been issued of the 14th Autumn Research Meeting of the Institution of gas Engineers. It will be held in London, on Wednesday and Thursday, Nov. 24 and 25. The detailed programme will be published later.

THE EMPLOYERS' VOICE

In the pre-nationalization era, the voice of the employer could be made heard to the Government through two organizations, the British Employers' Confederation and the Federation of British Industries. Through them, widely differing industries could present a united front on matters of common interest and through them all member-industries gained representation on such bodies as the Ministry of Labour's joint advisory council. Nationalization brings along a special problem as regards the representation of State-controlled industries on these bodies, for nationalized industries are not members of either the Confederation or the F.B.I. The boards of nationalized industries have now been invited by the Government to suggest how they should be represented. The two main possibilities are that either the nationalized industries can negotiate for membership of the existing organizations, or they can form an association of their own. Such a new organization might be frowned upon by the Government as there would always be a possibility of the concentration of too much power in the hands of a body which would act independently. This question puts the gas industry in a peculiar position. Through its own employers' association, the Federation of Gas Employers, the gas industry has been represented on the Confederation of British Employers since its inception—a matter of 30 years or so. Now the gas industry has to decide (or under the new set-up, have decided for it) what its future is to be in relation to the Confederation and the F.B.I. The industry has derived from its membership of the Confederation and the F.B.I. many advantages which it would be a pity to lose under the new regime.

ROAD TAR RESEARCH

A move has been made by the British Road Tar Association, who have left Gas Industry House, Grosvenor Place, S.W.1, for 9, Harley Street, W.1 (new telephone number: MUSeum 3833). The move was dictated by lack of space and uncertainty about the future of the Association's accommodation in a building owned by an industry shortly to undergo a change of management. The work of the Association, we may add, continues unabated. Their latest publication is a report of the Road Tar Research Committee on adhesion (Road Tar Bulletin No. 4, reviewed recently in the "JOURNAL"). The next report, though owing to the nature of the work no date can be set for its issue, is expected to deal with the design of dense tar surfacings. The researches of the Association are undertaken for the most part by the Road Research Laboratory of the Department of Scientific Research, as part of the programme of the Road Research Board. The immediate problem is concerned with the formulation of a durability test, "durability" being defined as the life and behaviour of tar, which will help in solving one of the basic problems—to determine the reasons for the deterioration with time of tarred surface. The problems involve the difficulty of devising a durability test which will give results comparable to those seen on the roads when the surface is in practical use and is being worn by traffic and climate. Road trials (the Association carry them out in conjunction with the Ministry of Transport) are regarded as the acid test, and there are so many technical points connected with the devising of a suitable technique that hard conclusions cannot be expected for some time.

COAL INDUSTRY ECONOMY

The coal industry "cannot look upon the consumer as a milch cow" said Mr. Robens, Parliamentary Secretary to the Minister of Fuel and Power at the N.C.B. Summer School (see later pages). This phrase would bear a great deal of examination, for the consumer is the nation generally and the nation particularly. The reference is neat and apposite. Apart from the fact that millions buy coal for industrial and domestic use and pay heavily for what they get, the reflection in the prices of manufactured goods is apparent over the whole country. And the buyer frequently gets coal, plus; he is likely to get 10% of incombustible matter with his loads and this valueless percentage has to be weighed, carried, and stored. The plus is troublesome in every sense. Harder work, less absenteeism, fewer strikes, and the abolition of restrictive practices are a positive essential to increased output from miners; this contribution, he suggested, should be made by them. No reasonable person will dispute it. The gas industry is paying well over 100% more for its coal, and it is inferior coal. What should be done to make coal an economic industry within the framework of all industry is a matter that needs immediate attention. To nationalize an industry and then to watch it being handled by a Board is one thing; but to nationalize the same industry and get it running for the benefit of the miners and consumers is quite another matter. The present Board is patently nervous; it appears to enjoy the confidence neither of the House nor of the miners. In due course the whole business will be straightened out, but there is no time to lose in bringing into being an effective re-organization. The miners have benefited considerably, and those who pay their wages through buying coal are suffering considerably. There should be an equitable sharing out of the so-called benefits of this new order so that the consumer gets good quality coal at reasonable prices, which give the miner, in turn, a good wage; and yet makes the industry an economic one.

THE MACHINE TOOL EXHIBITION

For the purpose of the exhibition which opened at Olympia last Thursday, and of which we give some impressions on page . . . of this issue, a machine tool has been defined as "a power-operated mechanism for cutting metal or wood, which by use of the copying or generating principle produces work more accurately and more quickly than any other previously known method." The machine tool, in its commonest sense, is not a new creation; indeed, the first public exhibition of machine tools in this country was held at the great Exhibition of 1851 in Hyde Park. Most of

the designs with which we are acquainted to-day had already been established a century ago. It is rather in accuracy and speed that great changes have taken place and are steadily proceeding, and credit for such developments must be given not only to the pioneers whose work is illustrated in the historic display in the Grand Hall gallery, but to the members of the Machine Tool Trades' Association, who, having placed their services unreservedly at the disposal of the Government during the war, are facing many serious problems in these difficult days of peace. One of their biggest problems is that of exports. It has been urged that by sending machine tools abroad Great Britain is helping to re-equip the industries of other countries and thus enabling them to compete in the world market. But, as Mr. G. R. Strauss, the Minister of Supply, said in opening the Olympia exhibition, deliberately to prevent other countries achieving industrial prosperity by refusing to sell them the machine tools they need would not only be ineffective, in that others would eventually provide the machine tools that Britain held back, but would be contrary to our basic policy of maximizing the flow of world trade. It is almost certain that this year the total output of metal working machine tools alone will exceed £30 mill. worth, against the £6½ mill. worth produced in 1935, and wood working machines are expected to reach £5 mill. compared with less than £1 mill. in 1935. The machine tool industry has throughout appreciated the importance of constant and vigorous research. It is now faced with a difficult task. With materials in short supply production must be kept up, British industries supplied, and export markets enlarged. At the same time development and research must be pursued. The impressive display at Olympia inspires confidence that it will continue to discharge its responsibilities in the same spirit of enterprise and service that has characterized it throughout the past century.

FREE CHOICE

It is good to note that housing authorities faced with the choice of fuels are thinking twice before making a decision. No doubt they have been influenced by recent publicity given to indignant tenants who demanded free choice. In some instances electrical claims won the first round, and certain housing authorities, donning the mantle of fuel technicians, and impressed by the (apparently) simple canvassing necessary, decided against gas. Then the trouble started. Twenty-eight out of 30 tenants on an all-electric prefabricated bungalow estate at Enfield objected to the electric cookers with which they had been supplied and petitioned the Council for the installation of gas supplies. They were told by the Council that provision for the installation of only one service was made in temporary dwellings. Whether the dwellings in question will prove to be as temporary as was first intended is open to doubt; at all events the tenants pressed their case. Glasgow housekepers were the next to object, and the Clyde Valley Electrical Power Company reported that the cost of laying on electricity to new housing estates had become so high as to necessitate an assurance that current would be used for both heating and lighting. There followed a story from Eastbourne where tenants on a "prefab" estate sent a petition to their Housing Committee claiming that they received electric shocks due to faulty mains circuits to the houses. And now comes the news that, due to pressure of public opinion, the Housing Committee of the Hornsey Borough Council have revoked their decision, made in 1945, to install electric cookers in new Council houses at the Council's expense, and to remove them at the tenant's request, leaving tenants to make their own arrangements about a substitute; in future, tenants can choose which appliance they please. We turn to the Watford and St. Albans Gas Company's area. All new houses on the London County Council's Oxhey Estate are being fitted with gas coppers and a gas fire in the first bedroom; although residents have a free choice of cooking by gas or electricity, their vote is for gas every time. After all, the Egerton Committee recommended that publicity utility undertakings should be afforded the opportunity of providing gas or electricity to all new houses at the time of erection, and the Ministry of Health has directed local authorities that unless the gas or electricity undertaking in the district is unable to supply the estate, or the cost to the consumer of either fuel is too high, "a decision to service a housing estate with only one of these two fuels to the complete exclusion of the other is prejudicial to the co-ordinated development of both industries, and deprives the consumer of the freedom of choice to which he is entitled." Similarly, Mr. McKinley, Secretary of State for Scotland, recently stated in the House of Commons: "In general, it is not desirable that tenants should be compelled to depend entirely on one type of fuel to the complete exclusion of another. . . ." Again, Mrs. Beatrice Wilson, J.P., one of the signatories to the Report of the Sub-Committee on the Conversion of Existing Houses (Central Housing Advisory Committee, Ministry of Health), and one of the 10 women and three men chosen to advise the Ministry of Health on household labour-saving, stated in a recent interview with James Bartlett, of the *Daily Express*, "every woman should have the right to choose between a gas and an electric cooker. I think it was wrong that so many women in the new houses had to take what the authorities gave them."

Personal

Mr. KENNETH E. ALLPRESS, M.A., and Mr. W. H. G. ROACH, M.B.E., A.C.G.I., have joined the Board of General Descaling Co., Ltd.

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Mr. S. SMITH, of Blackburn, has been appointed Works Superintendent of the Penrith U.D.C. Gas Department. He was previously General Foreman at Oswaldtwistle.

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At the 75th Annual General Meeting of the Netherlands Gas Association, held recently at the Hague, Colonel C. M. CROFT, D.L., J.P., M.I.C.E., M.I.Mech.E., M.Inst.Gas E., President of the International Gas Union and Past President of the Institution of Gas Engineers, was accorded the rare distinction of election to Honorary Life Membership of the Association.

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Miss ELLINGTON WRIGHT, M.B.E., has been elected on the nomination of the Women's Gas Council to the Executive Committee of the National Council of Women for the year 1948-49, to take effect from Oct. 15. Miss Ellington Wright is a member of the Executive Committee of the Women's Gas Council and of the Public Relations Department of the Gas Light and Coke Company.

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Mrs. JOAN ROBINS, Chief Home Service Adviser of the Gas Light and Coke Company, has been elected Hon. Secretary of the Home Economics Committee of the National Council of Women. This election follows the retirement of Miss Rina Hands, who is going to South Africa. The office carries with it the Secretaryship of the Household Service League, which is recognized by the Ministry of Labour as the official body representing housewives as employers of domestic labour in relation to the National Institute of Houseworkers. Mrs. Robins is also a member of the National Council of Women's Executive Committee and will attend the Council's annual conference at Hastings in October.

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Mr. JOHN THOMAS CRAVEN, Public Lighting Superintendent of the Blackpool Gas Department, has retired after 47 years' service, having served under four successive managers. The occasion was marked by the presentation of a silver tea-set on behalf of the staff, by the Engineer and General Manager, Mr. T. R. Cook. Mr. Craven was responsible for the transfer of Blackpool public street gas lighting from hand to the automatic controlled lighting and extinguishing system. His long service has contributed to a family record of 181 years in the employ of the Blackpool undertaking. His grandfather, Mr. Joseph Shakespeare, was Distribution Superintendent and served 44 years; an uncle, Mr. Joseph Shakespeare, was Chief Meter Fixer, serving 42 years; a cousin, Mr. Sidney Shakespeare, is Maintenance Inspector, and has served 34 years to date; and a brother, Mr. Joseph S. Craven, Loco Driver, has served 14 years to date.

Obituary

Mr. A. C. BERNARD, Manager of the Carron Company, Falkirk, has died while on holiday in Thurso. Mr. Bernard joined the Carron Company in 1933, then left to join the Steel Company of Scotland, Ltd., in 1939. In 1942 he returned to the Carron Company and was appointed General Manager of the firm in 1943.

FREE CANNING SERVICE

Sheffield housewives have been provided with a free canning service for fruit and vegetables by the local branch of the Women's Voluntary Services, in co-operation with the Sheffield & District Gas Company. The newly installed demonstration theatre at the Hillsborough Showroom of the company has been loaned to the W.V.S. for this purpose by Mr. Ralph Halkett, General Manager.

The housewives have to take their own fruit and sugar, and are assisted in the actual canning by experts of the W.V.S. The only cost is a small charge for the cans, but, as one housewife said as she was busily coping with a batch of plums, "We learn the right way and it saves hours of work with bottles at home."

Diary

Sept. 7.—**National Federation of Gas Coke Associations** : National Technical Committee, Gas Industry House, 11 a.m. A special informal meeting will be held at 2.30 p.m. to meet a representative of the Centre Technique des Industries de la Fonderie.

Sept. 8-10.—**North British Association of Gas Managers** : Eighty-seventh Annual General Meeting, Aberdeen. Sept. 8, Golf competitions (ladies and gentlemen) ; bowling competition ; Mrs. H. S. Milne's " At Home." Sept. 9, Meeting, Cowdray Hall, 10 a.m. and 2.45 p.m. " The Thorncliffe Experiment in Industrial Co-operation," Sir Harold West, Managing Director, Newton Chambers & Co., Ltd., Thorncliffe ; " Cooker Required ? ", A. W. Farquhar, Engineer and Manager, Forfar Gas Department. Civic Reception, Art Gallery (with dancing in Cowdray Hall), 7.45 p.m. Sept. 10, Motor coach tour, leave Cowdray Hall, 9.30 a.m., return to Aberdeen, 7 p.m.

Sept. 13.—**London and Counties Coke Association** : Technical Committee, Gas Industry House, 2.30 p.m.

Sept. 13-17.—**Association of Public Lighting Engineers**: Annual Conference, Winter Gardens, Devonshire Park, Eastbourne.

Sept. 14.—**Industrial Gas Development Committee,** at British Coal Utilization Research Association, Leatherhead, 10 a.m.

Sept. 14.—**British Gas Council**: Central Board, Gas Industry House, 2.30 p.m.

Sept. 14.—**Federation of Gas Employers**: Central Committee, Gas Industry House.

Sept. 14.—**Gas Salesman's Circle (Scottish Western)** : " Night and Day," R. J. Gregg, Sales Manager, Ascot Gas Water Heaters, Ltd., 137, Sauchiehall Street, Glasgow, 5 p.m.

Sept. 14.—**National Federation of Gas Coke Associations** : General Committee, Gas Industry House, 10 a.m.

Sept. 14-15.—**Irish Association of Gas Managers**: Annual Meeting Cork.

Sept. 15.—**Eastern Junior Gas Association** : Opening Meeting. Presidential Address, H. J. Patching, A.M.Inst.GasE., Peterborough. Ladies invited.

Sept. 15.—**B.G.C. Domestic Development Committee**: Technical Sub-Committee, 10.30 a.m.; Main Committee, 2 p.m. Gas Industry House.

Sept. 20.—**London and Counties Coke Association** : Gas Industry House, Finance Committee, 11 a.m. ; Executive Committee, 11.30 a.m. ; Central Committee, 1.30 p.m.

Sept. 22-23.—**Wales and Monmouthshire Association of Gas Engineers and Managers**: Autumn general meeting, Newport.

Sept. 22-23.—**Institute of Statutory Inspectors of Gas Meters** : Annual Conference, Edinburgh, preceded by a Civic Reception.

Sept. 27.—**Women's Gas Council**: Executive Committee, Gas Industry House, 1 p.m.

Sept. 29.—**Institution of Heating and Ventilating Engineers** : " Research for the Heating, Ventilating and Air Conditioning Engineers," Cyril Tasker, M.I.H.V.E., Director of Research, American Society of Heating and Ventilating Engineers, at the Institution of Mechanical Engineers, Stonley's Gate, S.W.1, 6 p.m.

Oct. 1.—**North of England Gas Managers Association** : Autumn General Meeting, Stockton-on-Tees. Presidential Address by F. L. Scaife. Visit to works of Ashmore, Benson, Pease & Co., Ltd.

Oct. 2.—**Scottish Junior Gas Association, Eastern District** : Opening Meeting, Falkirk. Presidential Address : W. Brown.

Oct. 5.—**Midland Junior Gas Association** : Opening Meeting. Presidential Address, C. L. Evans, Birmingham, 6.30 p.m.

Oct. 5.—**Wales and Monmouthshire Junior Gas Association** : Opening Meeting, Newport (Mon.). Presidential Address : M. A. H. Dyer. Visit to Factory and Area.

Oct. 18.—**London and Counties Coke Association**: Annual Luncheon, 1 p.m. for 1.15 p.m.; Annual General Meeting, 2.45 p.m. Grosvenor House, Park Lane, W.1.

Oct. 21.—**Midland Association of Gas Engineers and Managers** : General Meeting, Queen's Hotel, New Street, Birmingham, 2.30 p.m.

Falkirk Gas Department Fitters, who had been on strike since June 14, returned to work on Aug. 24. The strike was called to support a demand by gas-fitters for the building trade rate of wages of 2s. 9½d. an hour in place of the 2s. 7½d. minimum required by the N.J.I.C. for the gas industry. The claim was rejected by the Town Council and the dispute was submitted to the Industrial Relations Officer in Glasgow for his opinion. After the men had resumed work an official of the Gas Department said that the men had gone back at the old rate of wages. One result of the ten-weeks stoppage was that several housing schemes in the borough could not be occupied because domestic cooking appliances had not been connected to the gas mains.

News in Brief

Every Flat in a modern block at Surrey Court, Broughton Avenue, N.3, in the area of the North Middlesex Gas Company, is equipped with a De La Rue multi-point gas water heater.

Llandudno's New 104 house and flat estate has been equipped with gas cookers (No. 202) and wash-boilers (No. 780) by John Wright & Co., Birmingham. The radiators are solid fuel Ideal Boilers.

" Come To Tea," is the title of a leaflet issued by the Coventry branch of the Women's Gas Council, containing a selection of recipes which they hope will prove useful when other women are entertaining visitors.

A " Victor " Sports Gala, arranged by Thomas Potterton (Heating Engineers), Ltd. (a De La Rue Company), at Dulwich, on Aug. 22, opened in the morning with the annual 1st versus 2nd Eleven Cricket Match, won by the 1st Eleven. The weather was kind and there was a very good turn out for the occasion, wives and families joining with enthusiasm in the competitions and races, which took place in the afternoon. A feature of the gala was rides for kiddies on a trailer drawn by a model steam driven traction engine made by E. Baughan, of the machine shop at the Potterton Works. Following tea, prizes were distributed by Mrs. T. F. C. Potterton, wife of the Chairman of the firm.

The Annual Meeting of the Irish Gas Association will be held at University College, Cork, on Sept. 14, under the Presidency of Mr. P. J. Sheehan, Engineer and Manager, Cork Gas Consumers Company. Proceedings will begin at 10.30 by a reception by the Lord Mayor of Cork and by Mr. E. T. Mahony, Chairman of the Gas Company. There will follow the President's Address. Two papers are to be given, one by Mr. H. C. Harrison, of Dublin, on " Mechanical Equipment," the other by Mr. J. J. O'Mahony, of Cork, on " Distribution and Installation Problems." The annual dinner will be held at the Imperial Hotel on the same day. On Sept. 15 there will be an excursion to Whitegate, while a golf competition will take place at Douglas Golf Links on Sept. 16.

Richard Crittall & Co., Ltd., and Air Ducts, Ltd., announce that with their consent and the leave of the Court, Mr. R. G. Leach, of Peat, Marwick, Mitchell & Co., has been appointed by the companies' principal bankers as receiver and manager of the companies. To facilitate the reorganization of the companies all members of the Board have resigned. New Boards have been appointed and will co-operate with the receiver in the interest of all concerned. The accounts of R. Crittall & Co. for 1947, which, it is stated, will be issued as soon as practicable, will show a loss. There will be no Preference dividend for the half-year to June, 1948. The new directors are Messrs. H. V. Cozens (Chairman), F. S. Towle, T. C. L. Westbrook, and W. A. McPhail (Managing Director).

The Argentine Supreme Court has revoked the Court of Appeal decision and decided that the Municipality of the City of Buenos Aires is entitled to prosecute the Primitiva Gas Company of Buenos Aires in respect of the municipality's claim that the company owes it approximately 26.5 mill. pesos, representing earnings in excess of 8% which, under the terms of the concession, should, it is alleged, have been paid over to the municipality. This, in effect, means that the city authorities and the company will now go to the lower court on the issue of whether or not the money is due. The judiciary embargo on the purchase price to be paid by the Argentine Government upon expropriation of the Gas Company's assets obtained by the municipality will remain in effect pending the result of this latest action.

1948 " JOURNAL " DIRECTORY

In order to keep the Directory information up to date, the following alterations and corrections which have been notified during the past month should be noted in the 1948 issue of the " JOURNAL " Calendar and Directory :—

Page 6.—ALRESFORD.—W. H. Emery, F.C.I.S., *G.M. & S.* : C. Birchmore, *E.*

Page 10.—BARRY.—S. D. Coole, *Gas and Water E. & M.*

Page 18.—BURNLEY, Lancs.—Delete A. F. Ames, *E. & M.*

Page 42.—KIRTON LINDSEY.—H. Christian, *M.*, vice W. M. Young.

Page 86.—BO'NESS.—J. C. Lamond, *S.*, vice R. Taylor.

Page 167.—SCOTTISH JUNIOR GAS ASSOCIATION.—Eastern District ; I. M. Anderson (Edinburgh), *Hon. Secretary and Treasurer*, vice T. P. Napier.

Page 167.—WESTERN JUNIOR GAS ASSOCIATION.—J. W. Denton (Torquay). *President*, vice F. J. Mills ; B. G. Hawkins (Plymouth). *Hon. Secretary*, vice F. W. Sansom.

Page 168.—SOUTH-WESTERN DISTRICT GAS SALESMEN'S CIRCLE : *Secretary*, H. Beacham.

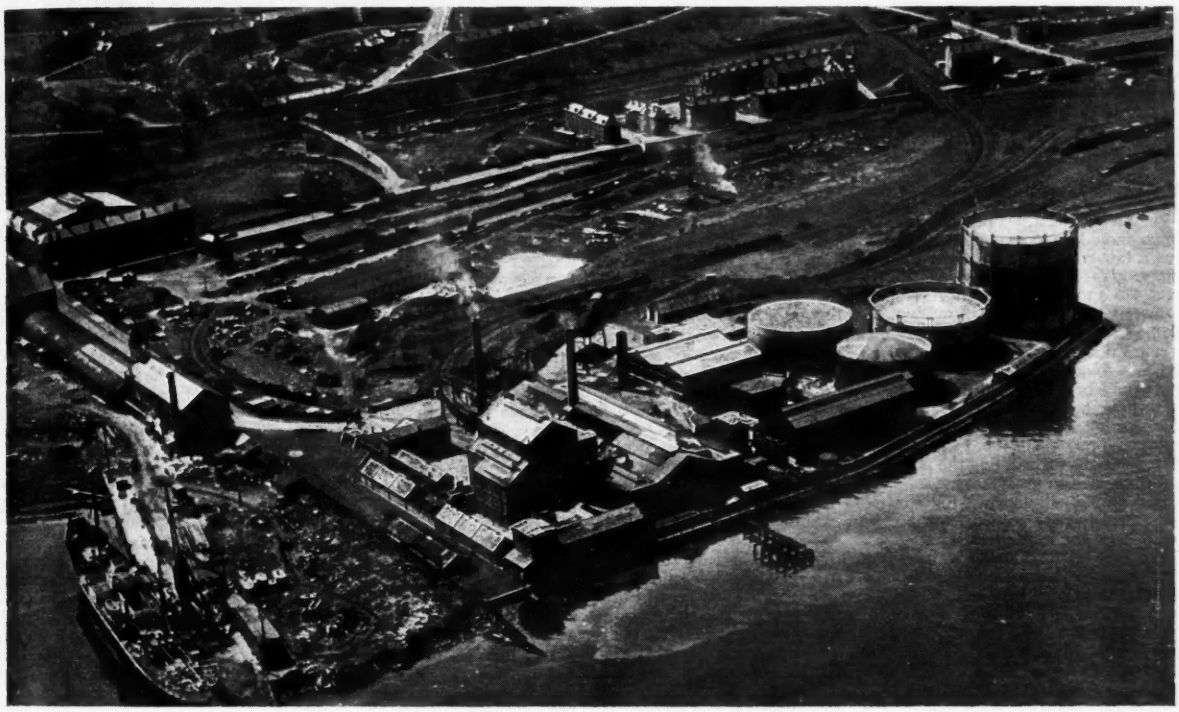
Page 169.—BRITISH ROAD TAR ASSOCIATION : Offices, 9, Harley Street, W.1., T/N : Museum 3833.

Page 169.—BRITISH GAS STAFF ASSOCIATION : Offices, Albert Gate Mansions, 203, Knightsbridge, S.W.7. T/N : Kensington 9451-2.

Page 175.—PUBLIC LIGHTING ENGINEERS, ASSOCIATION OF : E. Evans, *Secretary*, vice H. O. Davies.

GREENOCK'S GAS PRODUCTION POSITION

Over the past few years the Corporation of Greenock has received authorization from the Ministry of Fuel and Power to proceed with an extensive scheme of development at Inchgreen Gas-Works. In 1947 a contract was placed for the renewal and enlargement of No. 3 gasholder ; the new holder will store one mill. cu. ft. of gas, practically double the capacity of the original one, and should be ready for service in the autumn of 1949. When the new holder is completed the total storage capacity of Greenock's four holders will be 3¼ mill. cu. ft., and storage plant, waste heat boiler, and modern dust extraction equipment to ensure best possible working conditions. This new installation will be housed in a brick panelled steel framed building with four towers to house the lift and chimney structures ; the new retort house is designed ultimately to accommodate 32 retorts capable of carbonizing some 200 tons of coal and producing 4 mill. cu. ft. of gas per 24 hours. In the meantime the first section of 16 retorts has been authorized and is scheduled for completion in 1951.



Aerial View of the Greenock Gas-Works.

which compares with the potential maximum 24 hours' gas demand of 4 mill. cu. ft.

Arrangements have also been made to renew and enlarge an obsolete gas compressor originally installed in 1913 ; the new machine will have an output of 150,000 cu. ft. of high pressure gas per hour and will ensure a satisfactory supply of gas to districts remote from the gas-works. Installation of the new compressor should be completed in 1949.

New Carbonizing Plant

During the past year negotiations were completed and a contract placed for a complete new installation of continuous vertical retorts, complete with coal and coke handling plant, overhead coke grading

The expenditure involved is in the neighbourhood of £275,000 and is considered essential to cope with the ever increasing local demand for gas from domestic and industrial users. Under present conditions when new plant may take four to five years for delivery and completion it has been necessary to anticipate future potential demands for gas well in advance with a view to ensuring a continuous day and night service up to the standard of that provided in the 120 years' history of the local undertaking.

Over the past ten years Greenock's annual gas demand has risen by 17.6% or 136 mill. cu. ft. per annum and with normal lighting restored would be 26.3% up on 1938 despite the transference of a torpedo factory from Greenock which involved a loss in gas load of some 36 mill. cu. ft. or 4% of the total load.

SCOTTISH GAS DEVELOPMENT CENTRE

The Annual Meeting of subscribing undertakings of the Scottish Gas Development Centre was held at the Institution of Engineers and Shipbuilders, Glasgow. Mr. R. D. Keillor, Greenock, presided. The annual report had been issued to members and the Chairman made reference to the continued service being given. He appealed, however, for members to submit data or information for technical reports. The Secretary had informed him that there was a large number of installations in Scotland which justified publication as quarterly reports.

The Infra-Red Exhibition held at Glasgow in January had proved very successful and of considerable value to members and industrialists throughout the country. The results justified increasing this activity and the Advisory Committee had the matter in hand.

The Advisory Committee for the year 1948-49 was elected as follows :

R. D. Keillor (Greenock), Chairman. D. D. Melvin (Edinburgh). H. S. Milne (Aberdeen). Robt. Fife (Kilmarnock). F. R. Mitchell (Lanarkshire). Wm. Kirk (Motherwell). A. W. Brown (Alloa). J. Storrie, M.B.E. (Glasgow).

Following the business meeting a lecture on the Concentrated Combustion Burner was given by Mr. J. Palser, Industrial Installations Officer, Birmingham Gas Department. In this he outlined the development of this type of burner and his talk was illustrated by suitable lantern slides. A useful and interesting discussion took place in which Messrs. Smith (Edinburgh), A. Bujnowski (Glasgow), R. Fife (Kilmarnock), R. D. Keillor (Greenock), and Smith (Dunfermline) took part. Mr. Palser suitably dealt with the points raised by the members and on the motion of the Chairman was accorded a hearty vote of thanks.

The British Gas Staff Association has now obtained a suite of offices as national headquarters and all correspondence and enquiries should be addressed as follows : British Gas Staff Association, Albert Gate Mansions, 203, Knightsbridge, S.W.7. (Tel. : Ken 9451/2.) The scarcity of suitable accommodation since the war has made it necessary for the Association to work from offices in the suburbs of London, at considerable inconvenience. The new headquarters are centrally situated, close to Gas Industry House. The Area Organizers will continue to operate from the Area Offices.

PROPOSED RECONSTRUCTION AT GLASGOW GAS-WORKS

A COMPREHENSIVE SCHEME

ON Aug. 19, the Glasgow Corporation passed a Gas Committee Minute dealing with proposals to extend the manufacturing plant of the Gas Department to meet potential demands. A special sub-committee was appointed last January to consider the position. This sub-committee met on Aug. 9 and recommended that reports by the General Manager (Mr. D. D. Burns)—extracts from which follow—should be approved and that the proposals be submitted to the Ministry of Fuel and Power. It was also intimated that Stewarts and Lloyds, Ltd., had made an application for what would finally amount to 2·4 mill. cu.ft. of gas per day for their tube mills at Tollcross.

Potential Demand

The Department has been in touch with 1,361 industrial consumers, which include a considerable number of the larger consumers, and give a fair cross-section of the industrial demand. The present consumption is 2,288 mill. cu. ft. a year. Estimates for 1948-49 and 1950-51 are 2,419 and 2,577 mill. cu. ft. respectively. In addition the Department has definite applications which will total 1,710 mill cu. ft. in 1950-51. For example, F. Braby & Co. desire to change from their own producer gas to town gas as a result of their experience with furnaces fired by town gas. This potential load of 6 mill. cu. ft. per day would be so embarrassing that the firm has been told that in the meantime the Department cannot consider it and as a result the Ministry of Fuel and Power, through the Scottish Regional Gas Officer, approached the Department. The present position urged that proposals for meeting the potential demand should be formulated and submitted to the Ministry.

The additional demand for gas from industrial estates has been calculated on data gained from previous experience and shows 1,016 mill. cu. ft. for 1950-51.

A survey of the demand to be expected from new housing schemes, which can be regarded as an addition to the present domestic load, gives an additional load of 228 mill. cu. ft. in 1950-51. At present the domestic load is 2,161 mill. cu. ft. per year above pre-war consumption (35% increase). Undoubtedly the present coal shortage must be held accountable for some of the increase. On the other hand, better standards of living, the appreciation of the "handiness" of gas and the tremendous increase in coal costs (145% as against 42% for gas) leads one to the conclusion that there will be no appreciable falling-off in the demand for gas for domestic purposes.

As a minimum, and without taking into account the demand of Braby & Co., there is a potential demand for an additional 4 mill. cu. ft. per day for 1948-49, which will have increased to 7 mill. cu. ft. by 1951. If all the prospective business is to be met, these minimum figures can be approximately doubled.

The highest daily output last year was 46.0 mill. cu. ft. Pressures at the time were reduced and, if normal pressures had been given, the equivalent delivery on that day might have been as high as 49 mill. cu. ft. During the past winter pressures were reduced at various times in order to keep the gasholder stocks from falling below the safety margin. Neglecting any future estimated increase in demand, the gas-making capacity should be increased by at least 5 mill. cu. ft. per day in order that the maximum demands under normal pressures can be met without embarrassment, and some stand-by plant be available to meet defections in coke oven gas supplies or internal break-downs.

Apart from approving of the installation of carburetted water gas plant at Dawsholm Gas-Works and the extension to the coal carbonizing plant at Tradeston Gas-Works, which should be proceeded with immediately, the Gas Committee, said Mr. Burns, in a report dated June 1, 1948, might think it desirable, having regard to the nationalization of the Gas Industry, to approve generally of other proposals and pass them on to the Ministry of Fuel and Power for the consideration of the new administration.

Proposed Extensions

The total gas-making capacity of the Department could be augmented in the shortest time by the installation of three units of carburetted water gas plant, each unit of a capacity of 2½ mill. cu. ft. per day. Two units would operate together and the third unit would act as a stand-by. This installation would require to include a relief gasholder of 100,000 cu. ft. capacity. The coal carbonizing plant consists of two benches of continuous vertical retorts and two benches of intermittent vertical chambers completed in 1929 by the Woodall Duckham Co. The total make from this installation is 9 mill. cu. ft. per day. The plant has been maintained in good repair by partial rebuilding every five to six years. The complete renewal of one set of purifiers, together with all the washers and scrubbers forming the wet purification plant is now necessary. When this renewal is sanctioned, the entire ancillary scheme will be remodelled to modern lines and will include Holmes-Connersville meters and an electric detarrer.

The most recent additions to the gas-making plant have been installed in Tradeston Gas-Works. Two units of carburetted water gas plant, each of 2½ mill. cu. ft. per day rated capacity, were erected and gas-making early in 1944. Two benches of continuous vertical retorts each with a rated capacity of 2½ mill. cu. ft. per day were erected and gas-making by the end of 1946. The retort house framework and the steelwork of the coal handling plant were so arranged at one end that the plant could be extended by the addition of a bench similar to the existing benches and with a capacity of 2½ mill. cu. ft. per day. Concurrently with the erection of the vertical retorts, one set of purifiers, two gas exhausters, and a set of water tube condensers coupled to a water cooling tower, were erected and when a site is cleared a set of static washers and an electric detarrer will be laid down. Extension to the vertical retorts, and the installation of the static washers and electric detarrer are scheduled for the year 1948-49.

At Provan the coal carbonizing plant consists of eight benches of continuous vertical retorts completed in 1920 by the Woodall Duckham Co. In 1940 the rebuilding of the retorts was commenced by Gas Chambers and Coke Ovens, Ltd., and completed in 1944. The original intention was to install silica retorts and to increase the coal carbonizing capacity of the works by altering the design of the outside benches to accommodate a greater number of retorts per bench, but this scheme had to be dropped owing to war conditions affecting the free use of steel and refractory materials. In the proposals now contemplated for increasing the carbonizing capacity of the Department, the retort house at Provan would be reconstructed say, in 1953-54, in the manner as suggested in 1939 using the existing coal and coke handling plant, which is now being partially renewed by Babcock & Wilcox, Ltd.

Before this reconstruction could be started, it would be necessary to lay off one section of the retort house (two benches) for a period of about two years. Bearing in mind the estimated steady increase in demand, the loss of the gas-making capacity of one section (say, 3½ mill. cu. ft. per day) would have to be compensated by the installation of gas-making plant of equal or greater capacity. Adjacent to the retort house is the old horizontal retort house. This site would be suitable for the installation of two benches of continuous vertical retorts each of capacity of 2½ mill. cu. ft. per day with one set of water tube condensers. The coal carbonizing capacity at Provan would then be 26 mill. cu. ft. a day. This make, along with 5 mill. cu. ft. of C.W.G., would bring the total make of Provan up to 31 mill. cu. ft. per day.

The future development of Dalmarnock is obscure. No proposals have therefore been made to develop Dalmarnock, as any future increase in coke oven gas supplies might in due course enable Dalmarnock gradually to cease as a production unit.

No attempt has been made to give an indication of the total costs involved owing to the long term policy envisaged and the consequent variation in prices which must occur. So far as the proposals for the next few years are concerned, the present-day cost of the new plant proposed works out at £425,000.

EXETER METER TESTS

Approximately 10% of the 38,815 gas meters tested by the Inspector of Gas Meters at Exeter during the year ended Mar. 31, 1948, were rejected for a variety of reasons. The largest single number of rejects (1,262) was in the category "exceeding 2% fast," while "exceeding 3% slow" was a close second with 1,444. In their order of size the remaining groups were "passes gas unregistered," 723; "excessive absorption of pressure," 345; "leaks externally," 142; "will not pass gas," 56; miscellaneous, 104.

Of the total meters tested, 37,833 were new or repaired, and of these 2,949, or 7.8% were rejected. Also submitted for official certification on behalf of various local authorities and gas companies were 982 stamped meters, the accuracy of which was in dispute between buyers and sellers of gas. Of these meters, 155 were found to be correct and were restamped for further use; the remaining 827 were rejected, more than half of them for passing unregistered gas, and their seals were defaced.

The outstanding feature of the year's work was the continued increase in the number of large industrial meters received for verification; 784 of these meters, having capacities ranging from 1,200 cu. ft. per hour to 50,000 cu. ft. per hour were tested.

Testing fees, amounting to £3,574, were the third highest in the history of the department.

THE COAL BOARD'S SUMMER SCHOOL

"THE GAS INDUSTRY IS ONE WHICH UPGRADES COAL"—SIR ERNEST SMITH

AWAY from the noise and grime of collieries, the National Coal Board last week gathered together members of the rank and file of its administrative staffs, including engineers, chemists, and other office personnel, and got some of its principal officers to tell them of the economic value of their work. This theme was stated concisely by Mr. Alfred Robens, Parliamentary Secretary to the Minister of Fuel and Power, when he said: "Public ownership is an established fact, and no longer a matter for debate. The task that lies before us is to secure the maximum output at the lowest costs consistent with the responsibilities of the industry to the people it employs. I believe one of the ways towards increased production is for the workers in the industry to have complete understanding of the economic value of their work and the part that it can play in our economic recovery."

The speeches which were made at the School were often devoted to elementary facts, but they give some indication of what future coal policy is likely to be—a matter of importance to industries whose basic raw material depends on the efficiency of the Coal Board.

The case for exporting our coal was one of Mr. Robens's principal topics. He began by giving some account of our economic position and reminding his hearers of the part played by coal in our pre-war economy. Over the '30s, said Mr. Robens, some 50 mill. tons of coal were shipped abroad every year, in the face of serious foreign competition. Prices were then low; nevertheless, coal played its part over many decades. Now, he went on, it is the one national resource we have in abundance. "The immense value of its by-products is only just being fully appreciated and we have a long way to go before we can claim that we are using this, our most valuable resource, in the best and most efficient manner."

For European Recovery

Because it was appreciated how important our contribution of coal could be towards European recovery, said Mr. Robens, this was made one of the main features of our part in the recovery programme. Amounts which we had pledged ourselves to send overseas were 6 mill. tons for cargo exports to participating countries, and 7 mill. tons for overseas bunker depots and foreign bunkers at United Kingdom ports. In addition, we had to supply coal in substantial quantities to such countries as Argentina and Canada, who urgently needed it, and could send in return supplies of essential food. We had made plans on the assumption of having available for exports, including bunkers in 1948, more than 15 mill. tons, and the value of coal exports in trade negotiations was such that we must aim much higher. Once produced, said Mr. Robens, coal had the immense advantage that it could be exported immediately—it could leave the mines one day and be on the seas the next.

What will coal exports buy? These figures were given by Mr. Robens in support of his argument for exports: 100 tons of coal exported will bring enough foreign exchange to buy—

12,300 gal. of petrol from U.S.A.
Nearly 1,000,000 cigarettes from U.S.A.
30,000 lb. sugar from West Indies.
7,800 lb. coffee from South Africa.
6,900 lb. cocoa from South Africa.
3,600 lb. tea from India.
7,200 lb. rubber from Malaya.
15,000 lb. beef from Australia.
4,500 lb. butter from Australia.

"If we assume exports of about 16 mill. tons," said Mr. Robens, "we are left with some 195 mill. tons for inland consumption this year—11 mill. tons more than for 1947 when the fuel crisis restricted consumption. The first call on this extra tonnage must be for iron and steel output, industrial requirements followed by essential requirements of gas-works and power stations. . . . If we can only exceed this target (and it is within the capacity of the industry to do so) we shall have enough for our essential needs and that little extra which helps so much in our overseas negotiations."

Mr. Robens made no reference to the need for building up stocks at power-stations and gas-works—a need which is felt by anyone who suffered in the notorious winter of 1945-46. It is understood that gas-works are now carrying stocks of about four weeks' supply, enough to ensure smooth working but not enough to prevent breakdown if fogs held up the movement of ships from the coalfields to the gas-works unloading points, or snow the shipping of coal by trains. Stocks in July this year were 2,111,000 tons compared with 2,108,000 in the previous year.

Mr. Robens made a brief reference to the effect of absenteeism on coal production. This summer absenteeism has been averaging about 10% for all workers. An improvement of only 1% would give an increase of around 2 mill. tons a year. In the same way an improvement of only 0.01 in the overall output per manshift would give a similar increase.

A Man's Work

From figures given in the Board of Trade's *Digest of Statistics*, a persuasive argument for greater productivity per manshift can be added to Mr. Robens's. The average output per ton per manshift in 1938 was 1.14, compared with 1.11 in June, 1948. At the coal-face the figure in 1938 was 3.0 compared with 2.91 in June this year. This seems to indicate that the increased use of machinery in the pits is not bringing more coal to the surface though this increase is one which it might be expected would have offset the increase in the number of men on the collieries' books. In 1938 there were 782,000 men on the pay-rolls, compared with 725,000 in 1948. The gas industry will compare these figures with those for the consumption of coal at gas-works, officially stated by the Board of Trade to have been 368,000 tons in June, 1947, against 416,000 tons in June, 1948. This increase is due to the increased consumption of gas. Far from there being a decrease, reliable estimates show that an increasing amount will be consumed in years to come, with a consequent greater demand on the product of the mines.

Mr. Robens then devoted himself to the long-term policy for the fuel industry. He said:—

"As you all know, only the other week we passed the Act which nationalized the third of our great fuel and power industries—gas. For a century, in the cases of coal and gas, and for quite a number of decades in the case of electricity, these industries have expanded, developed, and spread under their own stimulus and with no other governmental intervention than that required to safeguard the workers and the standard of the product (in some cases) to the consumer. The chaos that resulted is manifest to everyone and I need only point, as an example of the need for some governmental intervention, to the fact that only by this intervention has it been possible to standardize such fundamental factors in electricity supply as voltage and frequency, and to achieve what is obviously desirable in the national interest—a national grid.

A Development Policy

"With the nationalization of these three industries, we are at least in the position to embark upon a policy of fuel and power development. Under the Acts the control of the three industries is placed in the hands of national or area boards but, where it is necessary in the national interest, the Minister has reserved the right to give general powers of direction. The fruits of such a policy must inevitably touch every one of us . . . and while some decisions on co-ordinated policy may be straightforward and obvious (such as the extension of electricity supplies in rural areas and the encouragement of the construction and the use of more efficient fuel burning appliances) their implementation in other directions will require careful examination and research.

"Here, for example, we have to consider the types of fuel which the domestic consumer should be encouraged to use and in this connection none of us should fail to realize the appalling waste which occurs when the by-products of good bituminous coal go up our domestic chimneys in smoke. Even when we have come to conclusions as to what policy we shall have to adopt, we are then faced with perhaps the most difficult problem of all and that is the means by which we can secure development along the lines which the experts consider most desirable and yet, at the same time, avoid a totalitarian attitude towards the individual consumer."

Practical policy, said Mr. Robens, must fall somewhere between two lines. One was the idea that some centrally planned body should decide which sorts of fuels should be used for one purpose; the other was that consumers should be free to choose the sort of fuel which they wanted, but that their choice should be influenced by the fixing of prices to correspond to the cost of alternative fuel services, and that the fullest information should be provided on the cost and merits of alternative fuels.

Consumer's Viewpoint

Another important address was given to the School by Sir Ernest Smith, Chairman of the Industrial Coal Consumers' Council but best known to the gas industry as former Director-General of Gas Supply and Past President of the Institute of Fuel. Sir Ernest said that the Industrial Coal Consumers' Council was a highly representative body. The cumulative experience of all the important industries was available at meetings through the presence of members connected with iron and steel, electricity, gas, and railways, &c., together with those from the trade unions, distribution interests, and the co-operative societies. Two members of the Coal Board also gave their advice.

Sir Ernest said that coal is by far our greatest national material asset and that it was the primary concern of the Council to see that there was sufficient coal of the right type and at the lowest cost to

meet the needs of British industry. He noted that members of the coal areas staffs might be unsettled because of difficulties and the inadequacy of the administrative set-up throughout the industry. "I understand that it is the official policy to speed up the process of devolution. Within very wide limits each section is being urged to assume responsibility for its own work. That should open up a new vista for everyone who is keen and ambitious to bring his department to the highest state of efficiency. It is vital for each department to be keyed in with the other departments with which yours is associated. Rules imposed from above are not sufficient to ensure co-ordination—they are useless without the spirit of mutual service."

About the future supply of coal, Sir Ernest said that the staff was justified in wondering whether once more in the not too distant future the supply of coal will exceed the demand and wondering, too, what the effect on the industry would be of the development of improved and more efficient methods of using coal. "If the progress of industry declines, it will be bad for the coal industry," he said. "But the world and the consumer are crying out for British products and will do so for many years. Increased trade means a greater demand for heat, light, and power produced from coal. The supplies and reserves will last some hundreds of years. But the price must be economic and the quality must be much better than much of the coal that is available to-day."

Of the electricity and gas industries, Sir Ernest had this to say: The electricity industry has in recent years reduced by half the amount of coal required to produce a unit of electricity. The recent "cuts" were due to shortages of plant, which, of course, was not helped when coal of inferior quality was supplied. At the same time it could not be overlooked that for heating purposes the efficiency of production, distribution, and use is less than 20%, which means that at the best the consumer only usefully uses one-fifth of the heat available in the coal from which electricity is made. This, however, closely corresponds to the efficiencies obtained when the domestic consumer uses coal in ts raw state.

Complete Gasification

The gas industry "can be said to be one which upgrades coal." It produced gas, coke, benzole, and tar. The saleable products obtained constituted about 80% of the original coal. The gas industry used 20 mill. tons of coal a year and produced for sale under 10 mill. tons of coke, and over 100 mill. gal. of coal tar. For each ton of coal carbonized they obtained between 70 and 80 therms of gas. Much work had been done in an endeavour to gasify coal completely, so eliminating the production of coke for sale and making 200 therms per ton. This—if successful and economic—would reduce the amount of coal used from 20 mill. tons per annum to 8 mill. tons. No satisfactory economic process had so far been evolved particularly if a gas of 400 B.Th.U. per cu. ft. was to be made. This development was not one likely to cause anxiety to the coal industry or to reduce one's confidence in the future.

After dismissing the "bogies" of oil and water power, Sir Ernest discussed the possible effect of atomic energy on the coal industry—a subject which has wide interest for all fuel and power industries. "The estimates that have been published of the possible cost of electricity produced by this means," he said, "are no more than wild guesses and many years of development must pass before there is any likelihood of any general use of this process in industry. This is my personal opinion after hearing the views of a number of our leading British experts on the subject. However, a power plant is to be tried out in the U.S.A. and we can only wait to hear the results of the trials. I expect that in any case there will be serious limitations to its general use and the effect on coal requirements will hardly be noticed. However quickly the harnessing of atomic energy develops it is fairly certain that it will be many years before it can be applied to the heat requirements of industry in any general way."

The general conclusion to be drawn from Sir Ernest's address is that the application of gas should be studied most closely by the Scientific Panel of the Ministry of Fuel and Power, for its efficiency and economy as a heating agent stand out above all its competitors.

A National Plan

Aug. 26 brought the School to its most important technical lecture, a paper entitled "First Principles of a National Production Plan," given by Mr. E. Humphrey Browne, who, at 37, is Chief Mining Engineer in charge of reconstruction and planning for the N.C.B. Mr. Browne was unfortunate in not being able to read his paper personally as his father died suddenly a short while before he was due to speak.

A national plan for coal, said Mr. Browne's paper, had two main essentials: the allocation of production between the various coalfields, the determination of the extent and rate of reconstruction work, the allocation of capital expenditure, and where necessary the redistribution of labour; and the preparation of a co-ordinated scheme of reconstruction in accordance with the foregoing. The allocation of production had to begin with estimates of the future level of demand, figures that it was almost impossible to forecast. A great competitive effort was necessary to maintain a substantial export trade. It was true that we had some advantages of quality, "particularly for gas-making and carbonization for metallurgical coke," but price would certainly be the operative factor.

In the past, said Mr. Browne, developments in the use of the various forms of power and in the consumption of different qualities of coal have been determined far too much by artificialities. It must be the objective of the Board to guide the country towards the most efficient use of energy. The man-hours for the overall process of coal production, transformation into other forms of energy, and use of power, should be the minimum.

Much had been said recently about the production of dirty coal. There was an intermediate product of inter-blended coal and dirt which should not be wasted. The need was that the consuming appliances should be designed for the types of fuel which they are destined to consume, whereas at present all too often the appliances were unsuitable for the fuel or vice versa. This did not apply so much in the domestic field, but in industrial purposes there was room for vast improvement. It was extravagant to wash coal to reduce ash to 10% if in the process the middlings were discarded to dirt heaps. There might be cases where it would be far more economical to produce a 20% ash fuel and to consume it in properly designed boilers.

Flexible Plan

The prospective national plan, Mr. Browne went on to say, must be flexible. Short-time working must be reduced to a minimum, everything possible must be done to intelligently anticipate variations in demand, larger stocking facilities would have to be provided and new ideas brought in on means on mechanical handling of large tonnages.

The speaker anticipated a decreased demand for round coal from domestic consumers—because of the restrictions of recent years it would never be required in such large quantities as in the past, many users having changed to electricity or gas. In very long-term planning he did not fear an excess of small coal though in the short or middle term there might be difficulties. Nor could the problem of fines be ignored, although with proper cleaning and blending and useful extension of the manufacture of processed fuels, it should be capable of solution.

With some notes on the preparation of a co-ordinated scheme to fulfil the national plan, the path to which, as the speaker sees it, has been briefly summarized here, Mr. Browne closed his paper which, in many ways, is the first authoritative outline of the plan which is being designed by the N.C.B.

PUBLIC HEALTH CONGRESS

The provisional programme of the Public Health and Municipal Engineering Congress and Exhibition, to be held at Olympia, London, from Nov. 15 to 20, has now been sent to local authorities all over the country. Though not yet complete, the programme includes 21 sessions of the Congress at which 26 papers will be read, those of special interest to the gas industry being on the refining of petroleum and tars, transport equipment and mechanical handling appliances, equipment for carriageway pavement construction, and district heating and its influence on town planning.

Over 200 firms will show equipment, plant and materials at the exhibition of public health and municipal engineering to be held concurrently with the Congress in the Grand and National Halls, Olympia. Several Government Departments will be among the exhibitors. The exhibition organizer is Mr. J. Pattison, 68, Victoria Street, London, S.W.1.

NORTH BRITISH ASSOCIATION

The 87th Annual General Meeting of the North British Association of Gas Managers will open at the Cowdray Hall, Aberdeen, at 10 a.m. on Sept. 9, with a welcome to the City by the Lord Provost, Mr. Duncan Fraser. The formal business will be followed by the presentation of the Association award to the most distinguished Scottish student of the year, presentation of certificates, and a discourse on "The Thorncliffe Experiment in Industrial Co-operation," by Sir Harold West, Managing Director of Newton Chambers & Co., Ltd., Thorncliffe, with discussion.

While the members hear and discuss a paper on "Cooker Required?" by A. W. Farquhar, Engineer and Manager of the Forfar Gas Department, in the afternoon the ladies will participate in a motor tour round Aberdeen, visiting various places of interest. There will be a civic reception at the Art Gallery at 7.45 p.m., followed by dancing in the adjoining Cowdray Hall.

The golf competition will be played on Sept. 8 over the links of the Murcar Golf Club, Aberdeen, and on the same day the ladies' golf competition will be played over the Deeside Course, Beildside. There will also be a ladies' putting competition at the Hazlehead Putting Green on the morning of Sept. 9. The bowling competition will be on the green of the Aberdeen Bowling Club on Sept. 8, and during the competition Mrs. H. S. Milne will be "At Home" to the ladies attending the meeting.

An all-day motor coach tour has been arranged for Sept. 10, starting at 9.30 a.m. and passing through some of the finest river, moor, and mountain scenery in Britain, returning to Aberdeen at 7 p.m.

GAS GRID PLAN FOR SOUTH WALES

WORKING PARTY RECOMMENDATIONS

The Ministry of Fuel and Power is considering recommendations of far reaching importance for the establishment of a Gas Grid Authority in the Western Area of South Wales and the immediate development of a gas grid through which coke oven gas from existing and future coke oven plants may be made readily available to gas undertakings—13 of them in the first stage of the scheme and four others in a second stage. A separate investigation is to be made into the development of gas supplies to nine undertakings in the extreme West Wales area.

THE recommendations are contained in the report of the South Wales (Western District) Working Party appointed at a meeting of representatives of the gas undertakings in the area on Oct. 15, 1946, "to investigate the greater utilization, within the area, of coke oven gas." The Working Party comprises Messrs. E. Ablett (Swansea), W. F. Edwards (Bridgend), W. Clark Jackson (Neath), A. Pickard (Llanelly), and E. M. Edwards (Port Talbot), Convenor, to whom special tribute is paid in the report for the valuable assistance he has rendered throughout the deliberations. The Working Party has also been assisted by Mr. R. J. Barritt (Divisional Carbonization Officer, South Western Division, National Coal Board), Mr. B. E. Blackledge (Manager, Margam Coke Ovens of the Steel Company of Wales), Major E. Ivor David (Regional Gas Officer), Mr. J. H. Chapman (Assistant Engineer, Swansea Gas Light Company), and Mr. W. D. Rees (Deputy Engineer and Manager, Port Talbot Gas Department). A Working Party appointed for similar purposes by representatives of gas undertakings in the Eastern Area of South Wales has been conducting simultaneous investigations within its area, and discussions between the two Working Parties have taken place on matters of common interest. The report has been submitted to the gas undertakings affected and is now receiving consideration by the Ministry.

Proposals in Brief

The Report recommends that coke oven gas from existing and future coke oven plants be made readily available to gas undertakings by means of a gas grid, and that a Gas Grid Authority be set up to be responsible for such gas grid. Provided satisfactory terms for the supply of coke oven gas from the Margam Coke Ovens be obtained from the Steel Company of Wales, the Gas Grid Authority should develop immediately—in order to meet the requirements of the following gas undertakings—the gas grid scheme defined in the report: Ammanford, Bridgend and Garw & Ogmore, Glyncorrwg, Gowerton, Llanelly (including the Trostre Cold Reduction Plant), Llynvi Valley (Maesteg), Neath, Port Talbot, Pontardulais, Porthcawl, Swansea, Tawe Valley (Pontardawe), and Tondu. The terms of any contract for coke oven gas supplies between coke oven gas suppliers and the Gas Grid Authority should be dealt with in the manner provided for in the Gas Act.

Any terms within any such contract which are relative to the effect of the price of coal and/or oil on the price of coke oven gas, and any terms within any such contract which are relative to the effect of oil supplies on the availability of those quantities of coke oven gas which the scheme has been designed to utilize, should be given especial consideration. All coke oven gas contracts in respect of gas to be supplied through the gas grid should be vested in the Gas Grid Authority. The period of contracts between coke oven gas suppliers and the Gas Grid Authority should be at least 20 years. Until such time as the scheme has been fully developed, the Gas Grid Authority should be given requisite financial assistance under the terms of the Distribution of Industry Act, 1945.

The Gas Grid Authority should determine at an early date whether the purifiers, compressors and other plant should be installed on a new site, or at the existing site at Aberavon Gas-Works, Port Talbot. The Gas Grid Authority should examine the relative merits of electricity and other forms of power, before the type of power to be adopted for driving compressors is finally decided. Early attention should be given to the gasholder storage capacity of the gas undertakings embraced by the scheme. No direct connexions to consumers from the grid mains should be made without the prior consent of the Gas Grid Authority. The distribution of unpurified gas should be discouraged.

The calorific value of gas supplied by all gas undertakings embraced by the grid scheme should be standardized at 450 B.Th.U. per cu.ft. and coke oven gas suppliers should be required to supply gas of a calorific value to enable this standard to be maintained.

The Gas Grid Authority should arrange, at the appropriate time, for the submission to the Commissioners of Inland Revenue, of income tax claims for obsolescence of plant displaced by reason of the grid scheme.

The future development of the scheme—providing for bulk supplies of gas to the gas undertakings serving the following areas should be considered by the Gas Grid Authority at a later date: Carmarthen, Kidwelly, Cross Hands, and Pontvates districts, and Llandilo.

The development of gas supplies to the following gas undertakings in the extreme West Wales area should be the subject of a separate investigation: Cardigan, Fishguard, Haverfordwest, Milford Haven, Neyland, Pembroke Dock, St. David's, Tenby, and Whitland.

Past, Present and Potential Demands

The Working Party has investigated closely the present requirements of gas undertakings, and has endeavoured to assess the probable quantities of gas that will be required during the next few years, also for long term development. In this connexion information has been obtained from the gas undertakings, the Board of Trade, and various Government Departments. Data has been collated of anticipated housing developments, existing houses that are not supplied with gas, and the location of proposed new factories.

The determination of future demands of domestic, commercial and industrial consumers has been a matter of great complexity. Housing developments are not known with accuracy, neither is the precise location of, and demands for gas by, all new factories. Alterations or delay in the construction of proposed new factories or in the programme for the building of new houses will naturally have an effect on estimates, which are based largely on information obtained early in 1947.

The Steel Company of Wales is erecting a large cold reduction plant at Trostre, Llanelly, in the Statutory area of gas supply of the Llanelly Gas Light Company. The plant is scheduled for completion by about June, 1950. The location of this plant at Trostre, with a demand for 133,300 cu.ft. of 450 B.Th.U. gas per hour, necessitated a major alteration in the scheme first prepared. The Working Party has been requested by the Steel Company of Wales to provide in its scheme for the gas requirements of the Trostre Plant, and its calculations are based on the following data supplied by the Steel Company:—

	Therms per hr.	*Cu. ft. per hr. of 450 B.Th.U. Gas*
Normal hourly demand	600	133,300
Maximum hourly demand	840	186,700
Working hours per week	168 hours	

Calculations have been based on a constant flow of 133,300 cu. ft. of 450 B.Th.U. gas per hour at a pressure of 1.18 lb. per sq. in. at the branch connexion from the grid main to the Steel Company's Works. The calculations do not include provision for the cost of the branch main to the Trostre Works from the gas grid main leading to Llanelly, nor for gasholder storage at Trostre. These costs do not form part of the gas grid distribution scheme.

After careful examination of all known facts long term development has been planned, with exceptions, upon the basis of a 100% increase on the estimated demands for 1949 of the undertakings, as submitted by them. The exceptions are Glyncorrwg, where provision is made for 200% increase, and Port Talbot, where provision is made for 100% increase in demand for purified gas, but no allowance for an increased demand for unpurified gas by Port Talbot industrial consumers after 1949. "Long term development" would extend over a period of approximately 20 years from 1949, but many variable factors may accelerate or retard this rate of progress. The Working Party has designed its scheme in two stages.

Major repairs or renewals are, or soon will be, necessary at most of the gas works. The maximum daily quantities of gas available will be reduced while repairs or renewals are in progress. The total daily manufacturing capacity of all the gas-works effected is 9.857 mill. cu.ft. but excluding Stage 2 the total daily capacity is 9.406 mill. cu.ft.

Coke Ovens (Existing and Future)

The existing coke ovens in the area are the Margam (Port Talbot) coke ovens of the Steel Company of Wales and the Tondu coke ovens of the National Coal Board. The Port Talbot Corporation is purchasing unpurified coke oven gas from Margam Coke Ovens, and the Bridgend and Garw & Ogmore Gas Companies, also the Tondu National Coal Board Undertaking, are

purchasing unpurified coke oven gas from Tondu Coke Ovens. The quantities of coke oven gas purchased during 1947 by the respective gas undertakings were:

Port Talbot Corporation	714.8 mill. cu.ft.
Bridgend and Garw & Ogmore Gas Companies	135.0 mill. cu.ft.
Tondu N.C.B. Gas Undertaking	32.9 mill. cu.ft.
Total	882.7 mill. cu.ft.

Large scale extensions of the Margam Coke Ovens are in progress and this plant is the major source from which coke oven gas supplies would be made available to gas undertakings. The Margam Coke Ovens are operated in conjunction with the Steel Company's steel works at Port Talbot. Large extensions of the Company's works are now in progress, incorporating the new strip mill and cold reduction plant. The coke oven gas will be made available largely by reason of the decision of the Company to use fuel oil for various processes.

The Tondu Coke ovens are situated in the coalfields near the collieries in the Aberkenfig area. While development and extensions of these coke ovens may take place, the future development programme is uncertain. When considering the question of supplies of coke oven gas the Working Party has had regard to the possibility that additional coke oven plants may be erected in the coalfields in the areas north and north-east of Bridgend. This factor has been borne in mind when determining the economic sizes of the gas mains to serve the West Wales industry area.

Quantities of unpurified gas which it is anticipated will be available to gas undertakings from the Margam Coke Ovens, and the Tondu Coke Ovens are shown in Table 1.

Particulars of the number, type, condition, and age of the coke ovens at the Margam and Tondu Coke Ovens, together with gasholder capacity, are given in Table 2.

Availability of Gas from Gas-Works and Coke Ovens

In estimating the quantity of gas available from gas-works the Working Party has assumed the average quality of gas to be 450 B.Th.U. and the capacity of the manufacturing plant to be the same as for 1947. Table 3 shows the total estimated daily quantities of 450 B.Th.U. gas available from gas-works and coke ovens, together with the estimated maximum daily requirements of gas undertakings for 1949, 1950, 1952, 1954, 1963, and 1969. The totals of "maximum daily requirements of gas undertakings" have been based on the estimated maximum daily demands of all undertakings, although it is not likely that the maximum daily demands of all undertakings will coincide.

By June, 1949, and until June, 1951, there will be available a quantity of coke oven gas which, with the gas available from existing gas-works plant, will enable each of the gas undertakings to meet its demands. The problem really is to purify and convey the gas to the points where it will be required.

By June, 1951, until the winter of 1954, there will be sufficient coke oven gas available to meet the demands of all gas undertakings, without the operation of gas-works plant, provided adequate arrangements have been made for purification, compression, transmission and storage of the gas. From 1954 to 1959 the quantity by which the availability of coke oven gas falls short of the demands of undertakings at the peak load periods is relatively small, and this deficiency should be met by the short period operation of existing gas manufacturing plants at selected gas-works.

The total quantity of coke oven gas available by June, 1951, that is 21,931.2 mill. cu.ft. of 450 B.Th.U. gas per day, is not sufficient to meet the "long term" demands of the gas undertakings in the area, if the entire demands are to be met solely by coke oven gas. The indications are that further supplies of coke oven gas will be necessary by the winter of 1959. If additional supplies of coke oven gas are not made available, it will then be essential to operate gas-works plants for prolonged periods, and by 1965 further supplies from new plant at gas-works will be necessary.

Coal, Gas Oil, and Residuals

The report gives details of the quantity of coal carbonized, gas oil used, coke produced and available for sale, coke sold, coke used for production of carburetted water gas, and tar produced, for the year 1947. Total coal carbonized in 1947 was 110,318 tons, and the quantity of gas oil used was 3,267 tons. In accordance with directions issued to gas undertakings by the Ministry of Fuel and Power, increased quantities of gas oil were used in 1947, thus for that year the quantity of coal carbonized was lower than otherwise would have been the case, and the quantity of gas oil was greater.

On a basis of a gas production of 80 therms per ton of coal carbonized for increasing quantities of coal, it is estimated the total quantity of coal required by the gas undertakings concerned

TABLE 1

	Margam (Port Talbot)			Tondu	Total	
	Coke Oven Gas Thous. cu. ft. per hour	Calorific Value	Thous. cu. ft. per hour at 450 B.Th.U. using (*a*) producer gas as a diluent, at Aberavon ; (*b*) Blast furnace gas as a diluent	Coke Oven Gas Thous. cu. ft. per hour at 450 B.Th.U.	Thous. cu. ft. at 450 B.Th.U.	
					Hourly	Daily
Current	140	485	154 (*a*)	25	179	4,296
June, 1948	200	485	220 (*a*)	25	245	5,880
December, 1948	220	485	242 (*a*)	25	267	6,408
June, 1949	280	485	308 (*a*)	25	333	7,992
Approx. January, 1950 ...	540	500	607·5 (*b*)	25	632·5	15,180
Approx. June, 1951 ...	790	500	888·8 (*b*)	25	913·8	21,931·2

Calculations (*a*) provide for dilution by means of producer gas at the Aberavon Gas-Works of the Port Talbot Corporation, and in (*b*) by means of blast furnace gas at Margam Coke Ovens. Site provision has been made for a further extension of 30 coke ovens at Margam at a later date. Should these ovens eventually be installed an additional 250,000 cu. ft. per hour of 500 B.Th.U. gas would become available. This would be equivalent to 281,300 cu. ft. per hour of 450 B.Th.U. gas, using blast furnace gas as a diluent.

TABLE 2

	Margam Coke Ovens		Tondu Coke Ovens	
	Existing	New plant under construction	Existing	
No. of Ovens ...	54	90	25	25
Date of installation	1940	—	1935	1947
Condition ...	Very good	—	Rebuilding necessary.	Very good.
Type	Regenerative	Regenerative	Regenerative	Regenerative
Method of heating.	Blast furnace gas or coke oven gas.	Blast furnace gas or coke oven gas.	Coke Oven gas.	Coke Oven gas.
Gasholder capacity.	750,000 cu. ft.		Nil.	

TABLE 3

Total estimated daily quantities of 450 B.Th.U. gas available from gas-works and coke ovens, together with the estimated maximum daily requirements of gas undertakings for 1949, 1950, 1952, 1954, 1963, and 1969. (Stage one only.)

	1949 Thousand cu. ft.	1950 Thousand cu. ft.	1952 Thousand cu. ft.	1954 Thousand cu. ft.	1963 Thousand cu. ft.	1969 Thousand cu. ft.
Estimated coke oven gas available (per day)	7,992·0	15,180·0	21,931·2	21,931·2	21,931·2	21,931·2
Gas-works (per day)	9,406·0	9,406·0	9,406·0	9,406·0	9,406·0	9,406·0
Total availability	17,398·0	24,586·0	31,337·2	31,337·2	31,337·2	31,337·2
Estimated requirements of Gas undertakings per maximum day	15,997·5	19,718·0	20,814·8	21,990·3	28,417·4	34,109·0
Transmission losses	301·2	391·8	414·1	438·1	569·2	685·2
Estimated total gas requirements per maximum day	16,298·7	20,109·8	21,228·9	22,428·4	28,986·6	34,794·2
Estimated surplus between availability and maximum daily demands ...	1,099·3	4,476·2	10,108·3	8,908·8	2,350·6	—
Estimated deficiency between availability and maximum daily demands ...	—	—	—	—	—	3,457·0

will be as follows if the increasing demands for gas are not met from coke ovens:—

1949	172,783 tons.
1950	210,223 tons.
1951	248,564 tons.
1952	255,522 tons.
1953	263,464 tons.

In preparing the above figures it has been assumed the requirements of Port Talbot Corporation will continue to be met by coke oven gas supplies from Margam Coke Ovens, also that the entire gas output of the Tondu Coke Ovens will continue to be utilized by the Garw & Ogmore and Bridgend Gas Companies, and by the Tondu Gas Undertaking. If the preceding conditions fail to apply, the total coal requirements of the various gas undertakings will increase approximately to the following figures:—

1949	245,064 tons.
1950	284,013 tons.
1951	323,913 tons.
1952	332,427 tons.
1953	342,045 tons.

The total tonnage of coke sold to the public in South Wales by the gas undertakings scheduled in 1947 was 32,435 tons. To the extent by which these gas undertakings reduce the manufacture of coke, it will be necessary for coke to be made available from other sources to meet essential requirements of the public. In this connexion regard must be paid to the trend of development for the greater utilization of smokeless fuels.

The existing alternative sources of coke supply are confined to the importation of coke from areas outside South Wales, and to the supply of specially prepared coke from coke oven plants. Whatever alternative source of supply is adopted, it appears that coke prices within the area would be higher than if the local gas undertakings continued to manufacture coke.

The total quantity of tar produced by these gas undertakings in 1947 was 5,013 tons.

Reduction of coal carbonization by the gas undertakings would, of course, mean less tar being available from them, but it is not considered that this aspect would be of serious import in view of the large and increasing production of tar by coke oven plants.

Gas Grid Proposals

The report continues: We submit proposals by which we consider the problem of gas supplies in the area can be dealt with successfully.

Stage 1.—The immediate development of a gas grid scheme to meet the requirements of the following undertakings:—Ammanford, Bridgend and Garw & Ogmore, Glyncorrwg, Gowerton, Llanelly (including the Trostre Cold Reduction Plant), Llynvi Valley (Maesteg), Neath, Port Talbot, Pontardulais, Porthcawl, Swansea, Tawe Valley (Pontardawe), and Tondu.

Stage 2.—The development of gas supply to:—Carmarthen, Kidwelly, the undeveloped areas in the Cross Hands/Pontyates districts, and Llandilo.

The co-ordination and development of gas supplies in the extreme West Wales area is a problem which should form the subject of a separate investigation. The names of the undertakings within this area are: Cardigan, Fishguard, Haverfordwest, Milford Haven, Neyland, Pembroke Dock, St. David's, Tenby and Whitland.

The Gas Grid Scheme utilizing coke oven gas supplies from Margam and Tondu, as now submitted, has been designed to meet the requirements of the undertakings specified in Stages 1 and 2. As an interim and emergency measure, it may be necessary for unpurified gas to be distributed from Port Talbot to certain gas undertakings, but we consider the distribution of unpurified gas should be discouraged, and provision made for the distribution of purified gas to all undertakings as soon as the necessary purification plant can be installed at Port Talbot.

Arrangements have already been made for the installation of compressors to serve the area east of Port Talbot. The cost of these compressors has been included in our calculations. Owing to the urgency of their need to meet increasing demands for gas by new industries, certain gas undertakings have been unable to await the completion of this report before making application to the Ministry of Fuel and Power for sanction to undertake certain mainlaying work.

In order that such mainlaying work might be carried out so as to form, ultimately, part of the proposed gas grid, each of the gas undertakings concerned, and the Ministry, were advised of the Working Party's views on the design to which the work should conform, and for the further guidance of the undertakings the Working Party prepared a specification designed to secure a high engineering standard.

Arising out of the application referred to, the following work has been sanctioned by the Ministry:—

i. Port Talbot to Bridgend Trading Estate.
15 in. dia. main from Port Talbot to Pyle.
10 in. dia. main from Pyle to the Bridgend Trading Estate. (Mainlaying work already commenced.)
500,000 cu.ft. capacity gasholder at Bridgend Trading Estate.

ii. Pyle to Porthcawl.
8 in. dia. main from Pyle to Porthcawl (proposed new gasholder station). (Mainlaying work about to commence.)

iii. Port Talbot to Neath.
24 in. dia. main from Port Talbot to Neath (Cadoxton Road) with connexions to Briton Ferry (gasholder station) and to Neath Gas Works. (Provisional order for the main already placed.)

iv. Neath to Pontardawe (Tawe Valley Gas Company).
10 in. dia. main Neath to Pontardawe. (Mainlaying work almost completed.)

v. Port Talbot to Maesteg (Llynvi Valley Gas Company).
8 in. dia. main from Port Talbot Corporation's 8 in. dia. high pressure main at Cwmavon, to Gas-Works at Maesteg.

Work within "i," "iii," "iv," and "v" has been recognized by the Ministry of Fuel and Power as work being carried out under the Distribution of Industry Act, 1945, and consequently the expenditure thereon is eligible for the special terms as to loans/grants provided for under Section 3 of that Act.

The accompanying drawing outlines the proposals, which make immediate provision for the development of bulk gas supplies to all undertakings west of Bridgend and up to and including Llanelly and Ammanford. Provision has been made in the scheme for the eventual installation of a re-compression station at Pontardulais, or other suitable selected site, and for the later development of gas supplies west of Pontardulais to Carmarthen and the intervening areas.

The scheme has been specifically designed to meet the following conditions and indeterminate factors.

Further additional supplies of coke oven gas from Margam, Tondu, or from possible new coke ovens that may be erected east of Port Talbot.

The continued operation, if expedient, of the gas manufacturing plants at Port Talbot, Neath, Swansea and Llanelly.

The existing daily production capacities of the above gas-works in thousands of cu.ft. per day are:—

Port Talbot	1,000.0
Neath	2,100.0
Swansea	3,720.0
Llanelly	1,050.0
Total	7,870.0

The installation of new modern and centralized gas manufacturing stations at suitable sites should the increasing demands for gas outstrip the availability of coke oven gas.

Means of interlinking with the Eastern area of South Wales should this later become desirable or necessary.

Interconnexion with the Aberdare district through the Vale of Neath, should this also later be required or necessary.

The routes for the various mains proposed have not been surveyed in detail, but it is considered the estimated lengths and cost of mains give a reasonably close approximation. In the preparation of the scheme regard has been paid to the major road construction and reconstruction proposals of the highway authorities.

In addition to the mainlaying work involved in the transmission of gas from Port Talbot to the various undertakings, we have had regard to the installation of the following necessary mains and plant:—

(a) 24-in. diameter unpurified coke oven gas main from Margam Coke Ovens to the purification and compression station at Port Talbot.
(b) Works mains at Port Talbot.
(c) Station meter, capacity 1,250,000 cu.ft. per hour, at Port Talbot.
(d) Purification plant at Port Talbot of capacity of 21 mill. cu.ft. per day.
(e) Two 2-mill. cu.ft. capacity gasholders at Port Talbot.
(f) Land—70 acres at Port Talbot.
(g) Compressors and compressor house at Port Talbot.
(h) Meters and control equipment at individual gas-works.
(i) Remote control apparatus to give the following information:—
(i) Gas pressure at all gas-works stations.
(ii) Rate of gas flow at all gas-works stations.

Compressors and Compressing Costs

We have made numerous calculations based on various sets of conditions, in order to determine the economic combination of operating pressures and main sizes. Although we have based our calculations upon electricity being used for prime movers, power costs form such an important feature of high pressure gas transmission costs that the question of the type of power to be adopted should receive further examination before a final decision is made. It is important that each compressing unit shall be operated as nearly as possible to its maximum rated capacity, in order that high operating efficiencies may be maintained. While we have allowed in our estimates for the installation of

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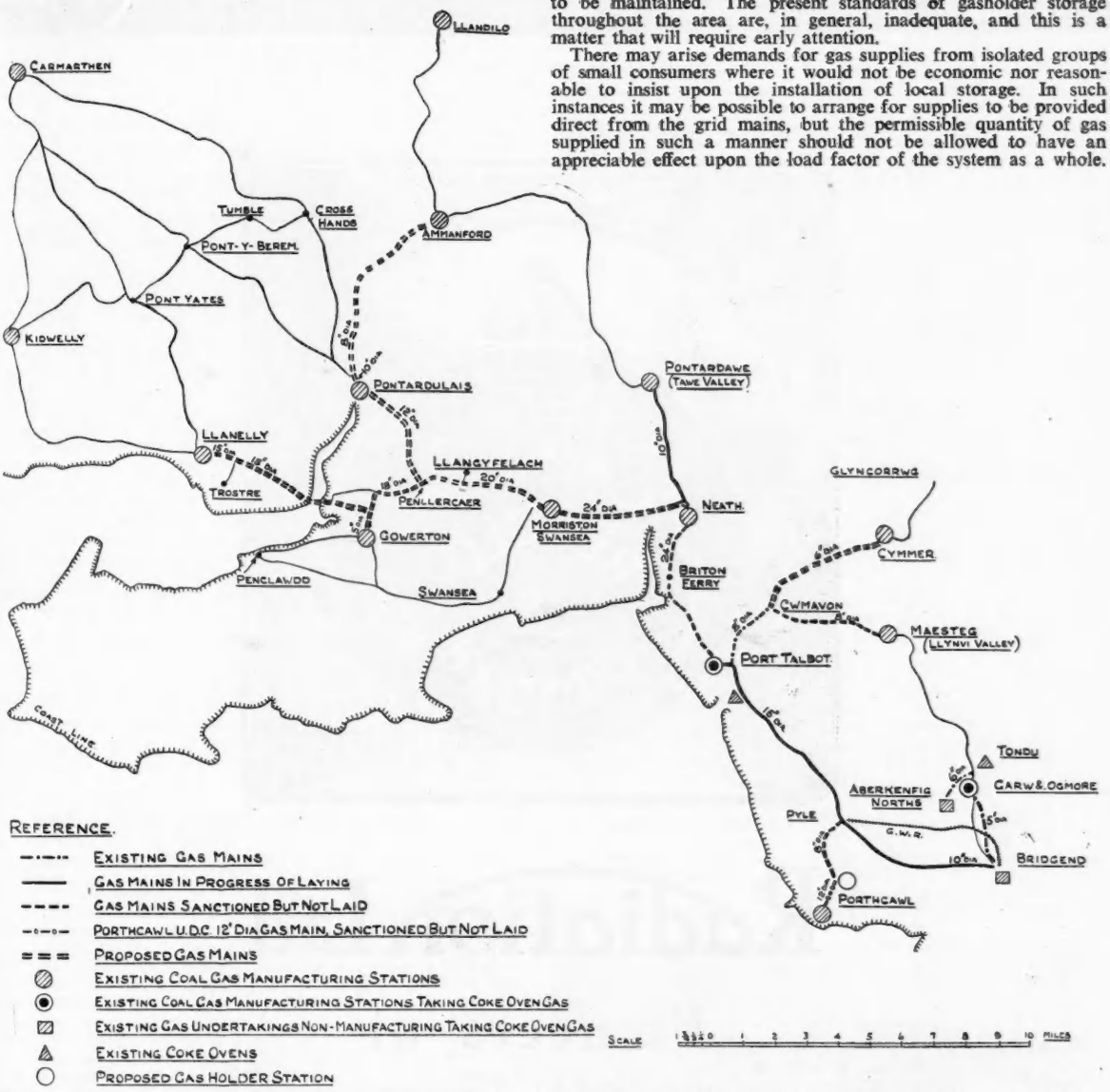
compressors of the undermentioned capacities, we consider the selection of the sizes of the various units requires further examination before final decisions are made.

takings should each day take their requirements from the grid at a steady rate throughout the 24 hours of the day, and should provide adequate gasholder storage to enable a high load factor to be maintained. The present standards of gasholder storage throughout the area are, in general, inadequate, and this is a matter that will require early attention.

There may arise demands for gas supplies from isolated groups of small consumers where it would not be economic nor reasonable to insist upon the installation of local storage. In such instances it may be possible to arrange for supplies to be provided direct from the grid mains, but the permissible quantity of gas supplied in such a manner should not be allowed to have an appreciable effect upon the load factor of the system as a whole.



Outline of the proposed South Wales gas grid, which makes immediate provision for the development of bulk gas supplies to all undertakings west of Bridgend and up to and including Llanelly and Ammanford.

West of Port Talbot:

2—Constant speed compressors, each of 250,000 cu.ft. per hour capacity and designed for a maximum outlet pressure of 20.0 lb. per sq. in.

2—Variable speed compressors, each of 250,000 cu.ft. per hour capacity and designed for a maximum outlet pressure of 20.0 lb. per sq. in.

Provision has been made for the future installation of an additional compressor of 250,000 cu.ft. per hour capacity.

East of Port Talbot:

2—Variable speed compressors, each of 60,000 cu.ft. per hour capacity, and designed for a maximum outlet pressure of 7.0 lb. per sq. in.

Provision has been made for the future installation of a third compressor similar to the above.

Load Factor and Gasholder Storage

We attach great importance to the operation of the grid system at a high load factor. The daily requirements of undertakings will not be constant, due to seasonal variations and other factors affecting the demand for gas. It is most important that under-

No direct connexions to the grid mains should be made without the prior consent of the authority responsible for controlling the gas grid.

Coke Oven Gas Contracts and Price

The whole of the available coke oven gas from the Tondu Coke Ovens of the National Coal Board is utilized by the Garw & Ogmore Gas Company, Bridgend Gas Company, and the Tondu Gas Undertaking of the National Coal Board.

The Port Talbot Corporation is at present purchasing up to 130,000 cu.ft. of coke oven gas per hour from the Margam Coke Ovens of the Steel Company of Wales. This quantity may be increased to 280,000 cu.ft. per hour, in accordance with arrangements made between the Corporation and the Steel Company of Wales.

The price asked by the Steel Company of Wales for coke oven gas under new contracts is 1s. 6d. per 1,000 cu.ft. of unpurified gas on the basis of a calorific value of 500 B.Th.U. per cu.ft., subject to a variation of 0.24d. per 1,000 cu.ft. for each 1s. per ton increase or decrease in the basic price of coal, and a variation of 0.075d. per 1,000 cu.ft. for each 0.05d. per gall. increase or decrease on the basic price of heavy fuel oil. The

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TABLE 4

Estimated Average Costs of Gas delivered from the Grid into the Gasholders of the Gas Undertakings for 1952, 1954, 1963, 1969, the Port Talbot Undertaking being excluded from Grid Distribution Charges (Stage 1)

	1952		1954		1963		1969	
	Pence per 1,000 cu. ft.	Pence per therm.	Pence per 1,000 cu. ft.	Pence per therm.	Pence per 1,000 cu. ft.	Pence per therm.	Pence per 1,000 cu. ft.	Pence per therm.
Basic price of coke oven gas, corrected to 450 B.Th.U. cu. ft. Calorific Value	16·2000	3·6000	16·2000	3·6000	16·2000	3·6000	16·2000	3·6000
Increase in cost of coke oven gas, by reason of advances in coal and oil prices, corrected to 450 B.Th.U./cu. ft. ...	4·8330	1·0740	4·8330	1·0740	4·8330	1·0740	4·8330	1·0740
Unpurified (450 B.Th.U.) coke oven gas — Steel Company's charges	21·0330	4·6740	21·0330	4·6740	21·0330	4·6740	21·0330	4·6740
Volumetric loss (0·6%) correction due to H_2S content ...	·1262	·0280	·1262	·0280	·1262	·0280	·1262	·0280
Coke Oven Gas—Unpurified—Gross cost	21·1592	4·7020	21·1592	4·7020	21·1592	4·7020	21·1592	4·7020
Capital charges and operating costs	6·8583	1·5240	6·6116	1·4692	6·1547	1·3677	5·9452	1·3211
Estimated total cost based upon present day charges by the Steel Company of Wales ... ... Income Tax Charges not included.	28·0175	6·2260	27·7708	6·1712	27·3139	6·0697	27·1044	6·0231

basic price of coal is 40/11.5d. per ton, being the average price of coal delivered at the Steel Company's Works at Margam for coking purposes for the six months ended June 30, 1946, and the basic price of heavy fuel oil is 6d. per gall. The basic prices are those submitted by the Steel Company of Wales; the calorific value to be determined after purification.

Since June, 1946, coal has increased by 8/6.2d. per ton, and heavy fuel oil by 2.3d. per gall. Consequently, by the operation of the variations provisions, the price of 500 B.Th.U. coke oven gas will be increased by 5.370d. per 1,000 cu.ft., and will become 23.370d. per 1,000 cu.ft., equivalent to 4.674d. per therm. The point of supply would be at the outlet of the Steel Company's compressors at their Margam Works.

Approximately 12,422 tons of cast iron and 5,552 tons of steel will be required for the construction of the first stage of the proposed scheme. Having regard to the Gas Act the Working Party makes no proposals for the finance, organization, administration, and operation of the grid, as these matters will be the responsibility of the Area Gas Board.

Economics of Gas Grid Scheme

Table 4 gives the estimated average costs of gas delivered from the grid into the gasholders of the gas undertaking, Stage 1, for 1952, 1954, 1963, and 1969, the Port Talbot Undertaking being excluded from grid distribution charges.

The estimated average costs of gas delivered from the grid into the gasholders of the gas undertakings for 1952, 1954, 1963, and 1969, the Port Talbot Undertaking's total gas demands being excluded from grid distribution charges, are as follows:—

	Cost per therm.			
	1952	1954	1963	1969
Coke oven gas—unpurified—gross cost ...	4.7020d.	4.7020d.	4.7020d.	4.7020d.
Capital and operating charges	1.5240d.	1.4692d.	1.3677d.	1.3211d.
Totals ...	6.2260d.	6.1712d.	6.0697d.	6.0231d.

Corresponding estimates, with Port Talbot's demands included, are as follows:—

	Cost per therm.			
	1952	1954	1963	1969
Coke oven gas—unpurified—gross cost ...	4.7020d.	4.7020d.	4.7020d.	4.7020d.
Capital and operating charges	1.4206d.	1.3680d.	1.2727d.	1.2283d.
Totals ...	6.1226d.	6.0700d.	5.9747d.	5.9303d.

The estimated capital cost of Stage 1 of the scheme—including the cost of mains that have been, and are being, laid, but not including the cost of additional compressors which may be necessary about 1959, nor of any additions to purification plant and/or gasholder storage, which may be necessary towards the end of the "long-term development" (20 years) period—is £1,344,570.

PLEA FOR MORE CREMATORIA

The respective merits of gas and electricity for cremation furnaces were discussed at the annual meeting of the Institute of Burial and Cremation Administration, at which Mr. J. Fox, Superintendent and Registrar of Cemeteries, Cardiff, in his Presidential Address, stated that cremation was employed in only 62,000 of the approximate total of 500,000 cases of death which occurred last year in Great Britain. He made a plea that the Minister of Health should give permission to the 200 local authorities who had schemes for the erection of crematoria to start building immediately.

The case for gas furnaces was put by Mr. W. R. Pearson, Clerk of the Headingly-cum-Burler Burial Board, who stated that of the 123 furnaces at present operated by 57 authorities, 99 were gas-fired, 10 electric, 12 coke-fired, and two oil-burning. The average time for cremation, using gas as the fuel, was 1 hour 28 minutes and gas consumption 1,053 cu. ft. These figures were for furnaces using fan pressure. He said that consideration of the whole question of efficiency, reliability, maintenance and running costs, cleanliness, space requirements, and absence of smoke had led his Board to the conclusion that although there was a slight bias in favour of gas it was not sufficient to weigh their judgment one way or the other.

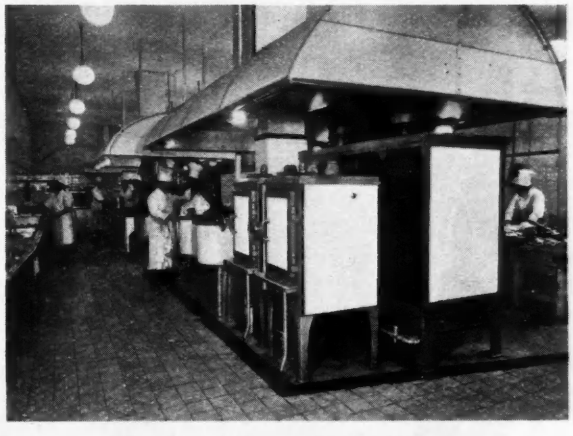
With regard to the figures for the cost of new cremators he revealed a considerable difference. Those using gas cost £1,658, while the price for electrical cremators was £6,000.

Mr. Pearson forecast that during the life-time of the present generation the whole method of cremation would be greatly simplified by the use of atomic power.

Mr. J. L. Evans, Superintendent of Cemeteries and Crematorium, Croydon, putting the case for electric furnaces, said the first electric installation in England was at Harrogate in 1937. Since then they had been installed at Croydon (two), Mortlake (three), Pontypridd, and Camberwell (two); making nine in operation at the present time. The cremation, with this type of installation, took place at 450° C., and was completed in an average time of one hour 20 minutes; the furnace was capable of carrying four or five cremations each day. Maximum average consumption of units at the present time did not exceed 60 and in one instance, that of Croydon, consumption had averaged 26 units during 1947. Smoke presented a problem: with careful attention it was possible, however, to eliminate this, and it had now been found that 75% of cremations were smokeless.

ALL-GAS KITCHEN AT WEMBLEY

The "all-gas" kitchen at Wembley Stadium was originally installed for the Stadium Restaurant in 1924 at the time of the Empire Exhibition. It has been in constant use since then, serving meals ranging from banquets to popular price dinners and snacks. The kitchen can



The all-gas kitchen at Wembley Stadium.

cater for 1,000 meals and 1,000 snacks. The kitchen was recently replanned and modern gas equipment was installed by Messrs. Benham & Sons, Ltd., Wigmore Street, London. The following apparatus was supplied: Eight unit solid top ranges, a double compartment grill, two single compartment grills, two roasting ovens, two pressure steamers, a 20- and two 30-gallon boiling pans, a stock pot stove, a hot closet with combined bain marie, a boiling table, a bain marie, and a Still's café set. Stainless steel was used for tabling, counters and sinks.

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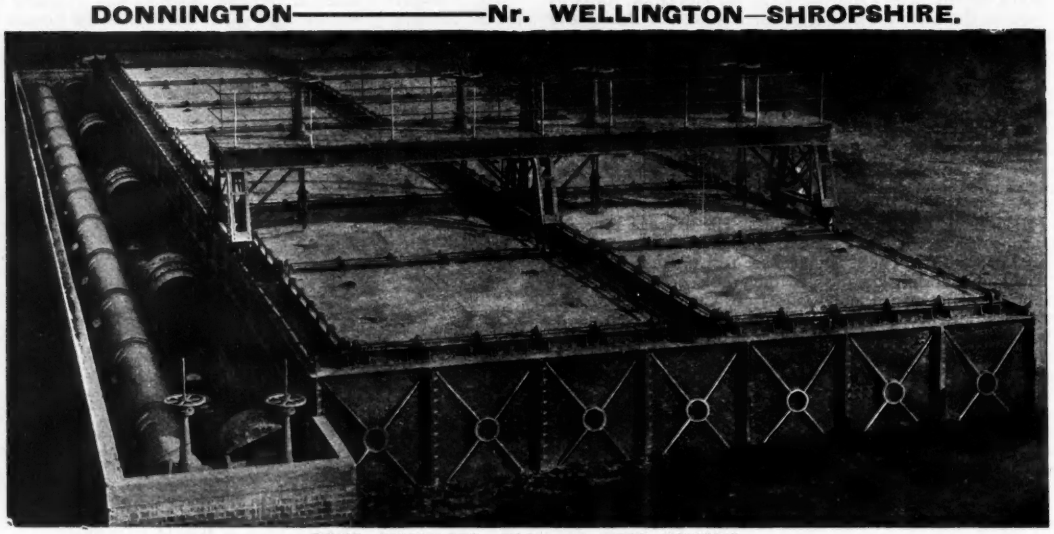

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MACHINE TOOL AND ENGINEERING EXHIBITION

THE Machine Tool and Engineering Exhibition, one of the most comprehensive and ambitious exhibitions of machine tools ever staged in this country or indeed in any part of the world, was opened at Olympia last Thursday and will remain open until Sept. 11. When the Machine Tool Trades' Association was formed in 1911 one of its principal objects was the holding of such displays, but this is the first to be held in this country since 1934.

There are 225 exhibitors, of whom 170 are members of the Association, and the £3 million worth of machines, weighing anything from a few pounds to nearly 100 tons, represent every conceivable application of machinery to the cutting, forming, and finishing of engineering products or their components. They are, in the main, machine tools made in this country, but about a quarter of the 200,000 sq.ft. or more of stand space displays machines and equipment made overseas, for which Association members are the importing agents. There is also a selection of ancillary equipment—such an exhibition would not be complete without some of the engineering products which, though not strictly machine tools, are complementary to them or used with them.

Viewed from the gas industry angle it is a two-way demonstration, in that some of the exhibits indicate how gas is applied to such processes as normalizing, annealing, hardening, tempering, and case hardening, while innumerable other exhibits show how the manufacture and erection of gas plant and appliances rely on the machine tool. There is scarcely a machine or a component in the whole exhibition that does not suggest some sort of application either within the gas industry or on the contracting side, and it would be futile to attempt a complete description. We therefore confine our reference to the exhibition to a general impression gained from a tour of the stands.

First we were impressed with the gas furnaces on show. **Lucas Furnaces, Ltd.,** have a series of gas-fired natural draught furnaces on show, including a twin chamber salt bath furnace, a 12 in. by 18 in. furnace, a 9 in. by 12 in. high speed steel hardening furnace, and an 18 in. by 24 in. high temperature furnace. There is also a general utility high speed steel hardening furnace. These furnaces include the use of special hot face insulation and patent "Aeromatic" gas injectors which allow for rapid attainment of working temperatures and operation at a high thermal efficiency, with a possible fuel saving of 30% in the conversion of existing plant. The salt bath furnace equipment provides long pot life as compared with similar forced draught type models.

The Gas Light and Coke Company's patent small muffle furnace for general purposes, manufactured under licence, is shown on the stand of Brayshaw Furnaces and Tools, Ltd. Most of the other items on this stand are electrically heated, but illustrations of large installations include bogie hearth furnaces, continuous furnaces of various types, and forced circulation furnaces.

Reavell & Co., Ltd., show examples of their standard compressors, including a vertical double acting two-stage air compressor, type V.C.8, with a capacity of 750 cu.ft. of free air per minute and a pressure of 120 lb. per sq.in.; a single stage quadruplex compressor, type QR 9 by 6, with a capacity of 400 cu.ft. per minute and pressures up to 120 lb. per sq.in.; a vertical two-stage single acting compressor, type LCSA.9, with a capacity of 250 cu.ft. per minute and pressures up to 150 lb. per sq.in.; and a vertical two cylinder single stage single acting compressor, type DSA.7E, with a capacity of 155 cu.ft. per minute and pressures up to 100 lb. per sq.in.

Coventry Climax Engines, Ltd., show a fork lift truck rated at 20 in. from heel of fork, for lifting, carrying, stacking, and turning 4,000 lb. loads to 9 ft. The turning radius is only 72 in. and the truck is equipped with super twin pneumatic tyres. It represents a complete handling system in one unit, combining the functions of a lift, crane, hoist, conveyor system, and work gang.

The **Rawlplug Co., Ltd.,** has a comprehensive range of plugs, bolts, anchors, toggles, boring tools, mechanical and electric hammers, &c., representing machine tools in themselves, components for other machine tools, and means for installing them.

The **Renold and Coventry Chain Co., Ltd.,** shows examples from practice in the application of chain transmission on machine tools. Remote control systems, clutches and couplings applied to lathes and automatic machinery are also displayed.

Among the non-member exhibitors the **Mond Nickel Co., Ltd.,** shows the contribution made by nickel alloys to the attainment of precision in machine tools. Properties of materials of construction on which precision depends are exemplified, together with instances of the nickel alloys which supply them. Information is provided on the choice, production, and use of high-quality materials developed through a comprehensive research policy.

The **Dunlop Rubber Co., Ltd.,** displays a range of flexible hose assemblies designed for high, medium, and low operating pressures, for conveying liquids and gases under pressure or suction where installation difficulties prevent the use of a rigid pipe. Synthetic and natural rubber compounds, reinforced by high-grade cotton and high tensile wire, are employed in the construction of the hose.

The British Standards Institution has a stand on which there is a selection of British Standards issued by the 50 different industries which comprise the Institution, and especially those standards which are of direct interest to the machine tool and engineering industry.

The Department of Scientific and Industrial Research is responsible for an exhibit illustrating some aspects of the work on engineering research undertaken by the Department's own research establishments and allied Research Associations. The exhibits demonstrate new equipment and improved methods for the precise measurement of the inaccuracies of machine tools and inspection equipment, and for investigation of the more efficient use of machine tools. Examples are displayed of improvements and development of scientific instruments.

The Machine Tool Trades' Association, promoters of the exhibition, have an extremely interesting historical exhibit showing the contribution which Britain made to the progress of civilization throughout the world by the birth and early development of the machine tool in England. Features of the stand are some of the tools of the pre-machine tool age, John Wilkinson's Bersham mill, with models of his famous boring machine, claimed to be the first genuine machine tool; Joseph Bramah's hydraulic press; Henry Maudslay's original models; an original sketch of James Nasmyth's steam hammer; and examples of Sir Joseph Whitworth's contribution to the development of the machine tool in the standardization of screw threads and gauges.

NEW PLANT AT JOHANNESBURG

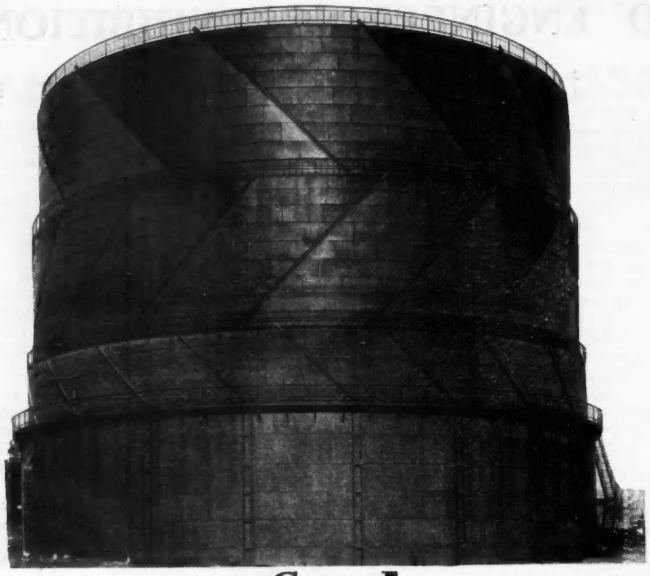
The current issue of *West's Gas* reports the official opening by the Mayor of Johannesburg (Mr. J. R. Gordan) of the new carbonizing plant with ancillary equipment at the Cottesloe Gas-Works. The new installation comprises a modern retort house with complete coal- and coke-handling machinery, a retort bench designed for 24-50 in. Glover-West vertical retorts, 16 of which have been completed for this contract. The retort setting is of the latest balanced-heating design. The plant also includes duplicate waste-heat boilers, water-softening equipment, ancillary plant of Messrs. Holmes' latest design with steam and electrically driven exhausters, a 200 kW generating set and telpher equipment for handling coal in and out of yard store.

The Mayoral party was met by the Engineer and Manager, Mr. J. G. Curnow, and conducted along the main roadway of the works, past the gasholders, where the new 3 mill. cu. ft. holder is in course of construction and the new dehydration plant is also partially erected, through the new exhauster house and into the retort house. Mr. W. E. Dobson, of West's Gas Improvement Co., Ltd., the Engineer in charge of the extensions, Messrs. Wolstenholme and Oakden, of Messrs. Blane & Co., Ltd., the contractors' representatives in South Africa, and the principal members of the main sub-contractor were assembled at the foot of the lift, where a bronze plaque covered by the Union Jack and the Union Flag was unveiled by the Mayor. The party then proceeded by lift to the charging stage where, as a symbol of the starting of the plant, the Mayor opened a retort coal valve.

Afterwards the party was entertained to refreshments in the showrooms of the gas-works. Here the Mayor paid tribute to the magnificent new carbonizing plant which he had just inaugurated and drew a comparison with those of older days. He remarked on the wise decision taken by the City Councillors in 1926, when the old works had to be scrapped and a decision taken as to whether a new works was to be built or not. The phenomenal growth of the city's gas-works to date fully justified the decision taken at that time. He referred to the designers and constructors, West's Gas Improvement Co., Ltd., and also by name to the principal sub-contractors both in Britain and South Africa. A toast was drunk to the future of the gas-works coupled with the name of Mr. J. G. Curnow.

Mr. Nathan Mann, Chairman of the Water, Gas, and Fire Brigade Committee, said how pleased they were that the new retort installation was in operation. He recalled the trying period of last winter, when only a break in the spell of cold weather prevented calamity as far as gas supplies were concerned. They approached the coming winter without apprehension knowing that the supply would meet the demand and for that they were truly thankful.

The following cablegram, addressed to Mr. Curnow from Sir Frederick J. West, was read to the assembly: "On the occasion of the inauguration of the recently completed extensions to your plant and equipment may we offer you our very sincere congratulations and best wishes. We confidently anticipate that the extensions will make a valuable contribution to the continued success of the Johannesburg Gas Undertaking. We also express our thanks for the valuable co-operation of yourself and your staff in the completion of a plant carried out under difficult circumstances arising from the post-war period. All my colleagues join with me in this message."



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GAS UNDERTAKINGS' RESULTS

Plymouth and Stonehouse

The Directors of the Plymouth and Stonehouse Gas Light and Coke Company have decided to pay interest at the standard rates on the 3%, 3½%, 4%, and 5% debenture stock for the half year to Sept. 30 next. The interest will be paid on Oct. 1. For transferees to receive this interest transfers must be lodged with the Company by 5.30 p.m. on Sept. 16.

Stourbridge Gas Department

In his seventh annual report Mr. S. J. D. Williams, Engineer and Manager, reports that receipts on revenue account from all sources in the year ended Mar. 31 showed an increase of £21,486 over the previous year. The balance carried to profit and loss account was £15,139 against £18,778 in the previous year. The Department borrowed £6,200 and re-borrowed £6,886 in respect of one of the loans repaid, and the outstanding loan balance on Mar. 31 was £66,476. Capital expenditure during the year amounted to £11,140, of which £862 was not sanctioned for loan and was therefore charged to profit and loss account. Gas sales showed an increase of 65,926,420 cu. ft., equal to 9.4%, and yielded a total of £158,224. The net surplus for the year was £338. Mr. Williams stated that considerable expenditure was incurred in maintenance of plant to meet the increased demands until new plant is available.

Northampton Gaslight Company

The balance carried to net revenue account for the year ended June 30 was £47,613, against £36,586 for the previous year. A final dividend of 2½% on Consolidated stock, making a total of 5% for the year, leaves a balance of £22,869 to be carried forward to next account, against £7,680 brought in. Gas sales totalling 8,097,647 therms showed a slight decrease of 1.6%, which is attributed to the contrast between the severe winter of 1946-47 and the mild winter of 1947-48. The average price received was 1s. 2d. per therm. A new vertical retort installation is in process of erection and it is hoped that it will be completed ready for gas production for the winter of 1949-50. A new high pressure main to Olney is now complete and delivery of gas to Olney and Newport Pagnell started on June 17 ; this will allow the closing down of the Newport Pagnell works as a manufacturing station. The Directors' report records the retirement of Mr. G. S. Eunson from the post of Managing Director and Chairman on May 1, after more than 65 years' continuous service with the company. Mr. S. C. Adnitt has been appointed Chairman, and Mr. H. Banks has been added to the Board and appointed Chief Engineer and Manager.

Boston Gas Light and Coke Company

Increases in the price of coals and in haulage charges brought about a big reduction in profits last year, the total being £724 compared with £6,271. There was a credit balance to the profit and loss account at the end of the year of £4,100 and the annual meeting on July 29 approved final dividends of £4 11s. 4½d.% on the Old Ordinary shares, making £8 16s. 4½d.% for the year, and of £3 15s. 3d.% on the New Ordinary shares, making £7 5s. 3d.% for the year. These appropriations left a balance to be carried forward of £3,287. Gas rentals amounted to £61,057, an increase of £1,380, while residuals realized £34,261, an increase of £3,568. The number of cookers in use on June 30 was 6,221, an increase of 91, and the number of meters 8,267, an increase of 134. Permission, said the Chairman, had been granted for the laying of new mains at certain strategic points to meet increasing demand. A further programme of main laying had been sanctioned by the Ministry, but they had not issued licences for purchase of mains. It had been necessary to approach the Ministry for permission to put up the price of gas and they were awaiting their reply. The economy campaign and the mild winter had resulted in a saving of 0.23% in consumption. Sales of appliances were good, and would have been better but for the crippling load of purchase tax. The Ministry had now agreed in principle to the installation of a new carbonization plant.

Leicester Gas Department

In his first annual report since his appointment as Engineer and Manager in succession to the late Mr. James Mitchell, Mr. K. L. Pearce reports a balance of £111,242 on revenue account for the year ended Mar. 31 and a disposable surplus of £27,952. The total quantity of gas delivered from the works was 3,821 mill. cu.ft., a decrease of 112 mill. cu.ft., or 2.85% compared with the previous year. Following the termination of the gas oil subsidy on Oct. 31 the manufacture of carburetted water gas became uneconomic as compared with the cost of coal gas, and this accounts for a reduction of 142 mill. cu.ft. in the amount of water gas made during the year. Gas sold and accounted for amounted to 3,647 mill. cu.ft., a decrease of 18¾ mill. cu.ft., or 0.51%. It must be remembered, Mr. Pearce points out, that sales in the previous year were considerably increased by the severe winter. The mileage of mains was increased by 18 miles during the year to a total of 783 miles, and the number of consumers increased by 2,339 to 106,508. Mr. Pearce includes in his report an interesting table comparing the latest results with those of previous years, as far back as 1900, when 43,578 consumers were supplied with 1,635¾ mill. cu.ft. of gas at 2s. 5.51d. per 1,000 cu.ft. through 199 miles of main. In the last pre-war year 94,843 consumers bought 2,557¼ mill. cu.ft. of gas at 3s. 3.74d. per 1,000 cu.ft. through 666 miles of main.

PETROCARBON PLANS

Proposals have been put forward for the reorganization of the capitals of Petrocarbon, Ltd., and Petrochemicals, Ltd., designed to enable Petrochemicals, Ltd., to raise additional capital. Application has been made to the Treasury for consent to raise £2,500,000 to finance the completion of the Catarole plant which is being erected at Partington, near Manchester, and to finance the initial development of a number of associated projects. Part of this additional capital is required to meet increased costs of raw materials and labour since the original estimates were prepared in 1945. Moreover, considerable technical improvements are being incorporated, and the capacity of the plant has been raised from the original figure of 50,000 tons to 75,000 tons per annum. Profit from a full year's working, before providing for research expenditure and taxation, was originally estimated at £500,000 ; it is now estimated on the basis of present-day prices that the profit of the revised project will be £1,400,000 per annum, subject only to taxation.

The proposals for the reconstruction of the capitals provide that Petrochemicals, Ltd., the operating company of the group, shall cease to be a wholly-owned subsidiary Company of Petrocarbon, Ltd., and, in turn, shall acquire all the Preferred ordinary shares and 45% of the Ordinary shares of Petrocarbon, Ltd. The new finance of substantially £2,500,000 will be raised by Petrochemicals, Ltd., as follows : (*a*) Finance Corporation for Industry, Ltd., will subscribe in cash at par for £900,000 4% Secured Loan stock and 548,998 Ordinary shares of £1 each ; and (*b*) Robert Benson, Lonsdale & Co., Ltd., will underwrite an issue of 1,050,000 Ordinary shares of £1 each, which will be offered for subscription at par to the present "B" noteholders of Petrocarbon, Ltd., following the exchange of their "B" Notes for Ordinary shares of Petrochemicals, Ltd. Petrochemicals, Ltd., will have outstanding, £1,800,000 of 4% Secured Loan stock (which will be held by Finance Corporation for Industry, Ltd.) ; 90,000 5% Preference shares of £1 each, and 2,612,500 Ordinary shares of £1 each, and will hold the entire Preference capital and 45% of the Ordinary capital of Petrocarbon, Ltd.

Sir Robert Robinson, President of the Royal Society, has accepted an invitation to join the Boards of Petrocarbon, Ltd., and Petrochemicals, Ltd., when the financial proposals have been implemented.

Considerable progress has been made in the erection of the "Catarole" plant. The Directors are satisfied that, provided suppliers can keep to scheduled times for remaining deliveries, the first units of the plant should be started up by the end of 1948, while the remainder will be in operation by the autumn of 1949. The Board of Petrochemicals, Ltd., is satisfied that there is a widespread market for the Company's products.

Styrene Co-Polymers, Ltd., has been formed jointly with Lewis Berger & Sons, Ltd., and will absorb Petrochemicals' total output of crude styrene for the manufacture of a styrene-based paint varnish.

Arrangements have been made to form Oxirane, Ltd., jointly with Lankro Chemicals, Ltd., to produce and market certain chemicals based on ethylene and propylene derivatives from the Petrochemicals plant. Lankro Chemicals, Ltd., have carried out for many years special research in the production and development of these chemicals, the bulk of which is at present imported into this country from the United States. A long-term agreement has been concluded with British Paints, Ltd., for the off-take of the entire production of Petrochemicals indene resins.

TRADE NEWS

Broom & Wade, Ltd., High Wycombe, have issued a new edition of their bi-monthly *News Bulletin*, giving details of the production of "Broomwade" pneumatic tools and how they are being used in the production of the company's own portable pneumatic products. Other features tell of the use of "Broomwade" equipment by the G.P.O., and how it is being put to good use in experimental laboratories. The issue's "picture page" shows "Broomwade" equipment displayed in Australia, Belgium, and South Africa.

* * *

Turbine Gears, Ltd., of Cheadle Heath, Stockport, have issued a well illustrated, 56-page catalogue describing double helical and other gears, introduced by a prefatory letter from the Chairman, Mr. Patrick G. Hamilton, who says that the firm's staff of technicians is always available to help in solving gearing problems. In a general section, the catalogue claims that advances in gear design and in the technique of gear manufacture "have gained for geared transmissions substantial advantages over practically all other forms." The catalogue describes and illustrates the manufacture of gears and in a technical section gives facts and figures for engineers.

GAS STOCKS AND SHARES

Stock markets showed a steadily improving tendency throughout the week, and although the turnover was not great the tone was more cheerful. The number of markings in the week ended Thursday evening was 28,073 compared with 25,007 in the preceding week, and 31,648 for the corresponding week of last year. British funds reached an average of 112.75, the highest since May. Industrials also recovered to the level of mid-June. Better savings figures, improved trade returns for July, and a more optimistic outlook regarding the Moscow talks were the three main factors in the week's improvement. Business in British Transport Stock reached a record high level on Thursday.

The week's turnover in gas stocks remained at a comparatively low level, with a total of 207, against 189 for the previous week, and 172 for the corresponding week of 1947. Price changes were few in number and small in extent, the only net reduction on the week being a fall of one point in Montevideo Gas and Dry Dock. In all cases where there were rises the price remained below the compensation figure under the Gas Act. Derby, with a middle figure of 136½, was four points below the compensation figure; Gas Light and Coke 3¼% debentures, at 96½, were 3½ below the compensation level (subject to possible adjustment); Hartlepool, also at 96½, was three points below; and Northampton, at 106½, was four points below.

The week's changes were as follows:

OFFICIAL LIST

Derby, Cons. Ord. (xd Aug. 18)	134	—139	+ 1
Gas Light and Coke, 3½ p.c. Red. Deb.	94	— 99	+ 1
Hartlepool Gas & Water, 5 p.c. Ord.	94	— 99	+ 1
Imperial Continental, 3½ p.c., Red. Deb.	100	—105	+ 3
Montevideo, Ord.	107	—112	— 1
Northampton, Cons. (xd Aug. 18)	104	—109	+ 1

Quotations on the London Stock Exchange

When last ex-Dividend	Dividends Interest.% Last Yr.	Prev. Yr.	NAME.	Quotations Aug. 26
Feb. 25	4	4	Alliance & Dublin Cons. Ord.	19/6—21/6
Apr. 28	5	5	Asscd. Gas & Water U'd'tgs Ord.	22/3—23/3
"	6	6	Do. Deferred	23/ —24/
Mar. 10	4½	4½	Do. 4½ p.c. Red. Cum. Pref....	20/ —21/
"	4	4	Do. 4 p.c. Red. Cum. Pref. ...	19/ —20/
"	4	4	Do. 4 p.c. Irred. Cum. Pref....	18/ —19/
Aug. 18	7	7	Barnet Ord. 7 p.c. max.	153—158xd
Aug. 16	5	5	Bath Cons. Ord. 5 p.c. basic	103—108
Sept. 17	6½	10	Bombay, Ltd., Stock	46/- -49/-
Aug. 18	8½	8½	Bournemouth Std. 5 p.c. sliding scale	164—169xd
"	7	7	Do. 7 p.c. max. div.	152—157xd
"	4	4	Do. 4 p.c. Pref.	96—101xd
"	6	6	Do. 6 p.c. Pref.	123—128xd
"	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100xd
June 16	4	4	Do. Perp. 4 p.c. Deb. ...	96—101
Aug. 18	5·35	5·35	Brighton, &c., 5 p.c. Std. Cons. ...	102—107xd
"	6·3	6·3	Do. 6 p.c. Std. Cons.	110—115xd
June 16	5	5	Do. 5 p.c. Perp. Deb. ...	116—121
Aug. 4	5	5	Bristol, Gen. Cap. 5 p.c. max.	112—117
June 16	4	4	Do. 4 p.c. New Deb. Red.	95—100
Mar. 10	7½	7½	Brit. Gas Light Ord.	127—132
June 16	5½	5½	Do. 5½ p.c. 'B' Cum. Pref. ...	108—113
"	4	4	Do. 4 p.c. Red. Deb.	92— 97
Aug. " 4	10	10	Cambridge U. & T. Orig. 10 p.c. Cons. ...	190—200
"	5	5	Do. 5 p.c. Cons. 'C'	95—100
"	7	7	Do. 7 p.c. Cons. 'B.'	135—140
Apr. 14	4½	4½	Cape Town, Ltd., 4½ p.c. Cu. Pf. ...	18/ —20/
July 14	6½	6½	Cardiff Con. Ord.	118—123
Mar. 10	5	5	Cheltenham, 5 p.c. basic Cons. Ord. ...	100—105
June 16	4	4	Do. 4 p.c. Perp. Deb. ...	95—100
Aug. 4	5¾	5¾	Chester United Ord.	107—112
June 2	7	7	Colombo Ltd., Ord.	27/ —32/
"	7	7	Do. 7 p.c. Pref.	22/6—24/6
Mar. " 31	5	5	Colonial Gas Assn. Ltd. Ord.	16/ —18/
"	8	8	Do. 8 p.c. Pref....	23/6—25/6
Aug. " 4	5	5	Commercial Ord.	£9— 94
June 2	3	3	Do. 3 p.c. Deb. Perp.	72— 77
Aug. 18	5	5	Do. 5 p.c. Irred. Deb.... ...	107—112xd
"	6	6	Croydon sliding scale	118—123xd
"	5	5	Do. max. div.	102—107xd
"	4	4	Do. 4 p.c. Irred. Pref.	95—100xd
June " 30	4	4	Do. 4 p.c. Perp. Deb.... ...	95—100
"	5	5	Do. 5 p.c. Perp. Deb.... ...	120—125
Aug. 18	8	8	Derby Cons. Ord.	134—139xd
June 16	4	4	Do. 4 p.c. Red. Deb.	93— 98
Aug. 4	5	5	East Hull Ord.	93— 98
Aug. 18	5	5	East Surrey 'B,' 5 p.c.	98—103xd
"	6	6	Do. 6 p.c. Cum. Pref.... ...	117—122xd
June " 30	5	5	Do. 5 p.c. Irred. Deb.	117—122
Mar. 1	6¾	6¾	East Wight Cons. Ord.	108—113
Aug. 18	5	5	Eastbourne 'A'	97—102xd
"	3½	3½	Do. 'B'	94— 99xd
June " 16	5	5	Gas Consolidation Ord. 'A'	20/6—22/6
"	5	5	Do. Ord. 'B'	20/6—22/6
May " 19	4	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6
Aug. 4	5	5	Gas Light & Coke Ord.	22/6—23/6
"	3½	3½	Do. 3½ p.c. max.	78½— 81½
"	4	4	Do. 4 p.c. Con. Pref.	99—102
July " 14	3¾	3¾	Do. 3½ p.c. Red. Pref.... ...	97—100
June 2	3	3	Do. 3 p.c. Con. Deb.	86— 89
"	5	5	Do. 5 p.c. Deb.	104—107
"	4½	4½	Do. 4½ p.c. Red. Deb.	104—107
Mar. " 10	3½	3½	Do. 3½ p.c. Red. Deb.... ...	94— 99
Aug. 4	5	5	Gloucester Cons. Ord.	94— 99
Feb. 11	4	2	Great Yarmouth (8½ p.c. max)	13 — 14
Feb. 25	7½	7½	Guildford Cons. Ord.	132—137
Aug. 18	5	5	Hampton C't, 5 p.c. Cons. Ord.	95—100xd
Feb. 25	5	5	Hartlepool G. & W. 5 p.c. Ord.	94— 99
May 19	6	6	Hastings & St. L. (5 p.c. Std.)	97—102
"	5	5	Do. (3½ p.c. Std.)	82— 87
June " 16	7½	7½	Holyhead & N. Wales Ord.	20/6—22/6
Mar. 10	5	5	Hornsey 3½ p.c. Std.	89— 94
"	6 7/8	6 7/8	Do. 5 p.c. Std	110—115
May 19	8¾	8½	Imperial Continental Cap.	107—112
July 14	3½	3½	Do. 3½ p.c. Red. Deb.... ..	100—105
Mar. 31	7⅞	7⅞	Lea Bridge Co., Cons. Ord.... ...	132—137
Aug. 4	5½	5½	Liverpool 5 p.c. Ord.	120—125
Mar. 10	7½	7½	Luton Cons. Ord. 'A'	148—153
"	6¼	6¼	Do. Ord. 'B'	115—120

When last ex-Dividend.	Dividends Interest.% Last Yr.	Pref. Yr.	NAME.	Quotations Aug. 26
July 14	7	7	Malta & Med'n., 7 p.c. 1st Pref.	110—115
"	7½	7½	Do. 7½ p.c. 2nd. Pref....	110—115
Aug. 18	5 5/10	5 5/10	M.S. Utility 'A' Cons.	100—105xd
"	3 4/10	3 4/10	Do. 'B' Cons.	68— 73xd
"	5	5	Do. 'C' Cons.	102—107xd
"	4	4	Do. 4 p.c. Cons. Pref.	96 —101xd
May 19	2	4	Montevideo, Ltd. Ord.	107—112
Aug. 4	5½	5½	Newcastle and Gateshead Ord.	24/6—25/6
June 30	3½	3½	Do. 3½ p.c. Perp. Deb.	93— 98
Aug. 4	7	7	Newport (Mon.) Cons.	95—100
June 16	5	5	Do. 5 p.c. Perp. Deb....	111—116
Mar. 31	6½	6½	North Middlesex 6 p.c.	123—128
"	5	5	Do. 5 p.c. Pref.	105—110
Aug. 18	5	5	Northampton Cons.	104—109xd
Aug. 4	—	9½	Oxford, Cons. Ord.	200—210
June 2	5½	5½	Plymouth & Stonehouse Ord	108—113
"	8½	8½	Do. Addl.	13⅜— 14⅜
"	7½	7½	Do. New	12⅝— 13⅝
Mar. 10	5	5	Do. 5 p.c. Deb. Perp....	118—123
Aug. 18	7½	7½	Portsmouth & Gosport Cons.	146—151xd
"	5	5	Do. 5 p.c. max.	100—105xd
Aug. 4	10	10	Preston 'A'	178—183
"	7	7	Do. 'B'	125—130
June 24	46	2	Primitiva Holdings, Ltd. Ord.	10/6—12/6
June 16	6	6	Do. 6½ p.c. Red. Cum. Pref.	99—104
Aug. 18	5	5	Reading, 5 p.c. max.	97—102xd
"	3¾	—	Do. 3½ p.c. Red. (Non-Cum.) Pref....	94— 99xd
June " 16	4	4	Do. 4 p.c. Perp. Deb....	92— 97
Aug. 18	5	5	Romford, Ord.	110—115xd
Mar. 31	4	4	Do. 4 p.c. Debs. Red....	95—100
June 16	7½	7½	Severn Val. Ltd. Ord.	22/3—23/3
Feb. 25	4½	4½	Do. 4½ p.c. Cum. Pref.	20/9—21/9
Feb. 25	6½	6½	Sheffield Cons....	143—148
June 30	4	4	Do. 4 p.c. Red. Deb.	94— 99
June 16	6	6	South East'n Gas Ltd. Ord.	21/9—22/9
Mar. 10	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	20/9—21/9
Aug. " 4	5	5	Do. 4 p.c. Irred. Cum. Pref.	19/—20/-
"	4	4	South Metropolitan Ord.	97 —100
June " 30	3	3	Do. 6 p.c. Irred. Pref....	123 —128
July 14	5	5	Do. 4 p.c. Irred. Pref.	97 —102
Aug. 4	5	5	Do. 3 p.c. Perp. Deb.	81 — 86
"	5	5	Do. 5 p.c. Red. Deb.	97 —102
"	4	4	South Suburban Ord. 5 p.c.	112 —117
"	3¾	3¾	Do. 5 p.c. Perp. Pref....	108 —113
"	4	4	Do. 4 p.c. Perp. Pref....	94 — 99
"	3¾	3¾	Do. 3¾ p.c. Red. Pref....	90 — 95
June 16	5	5	Do. 5 p.c. Perp. Deb....	119 —124
Apr. 28	5½	5½	South West. G. & W. Ltd. Ord.	19/—21/-
Aug. 4	5	5	Southampton Ord.	102 —107
Aug. 18	6	6	Sunderland Ord.	113 —118xd
Aug. 4	4½	4½	Swansea Ord.	82 — 87
"	5½	5½	Do. 5½ p.c. Red. Pref.	100 —105
Mar. " 10	7	7	Swindon Cons. Ord.	114 —119
Aug. 4	5	5	Tottenham Ord.	115 —120
"	5½	5½	Do. 5 p.c. Pref.	108 —113
June 2	4	4	Do. 5½ p.c. Irred. Pref.	120 —125
May 19	6.85	7½	Do. 4 p.c. Perp. Deb....	96 —101
June 16	7	7	Tunbridge Wells, 4 p.c. Sliding	122 —127
May 19	4½	4½	U. Kingdom Ltd. Ord.	22/9—23/9
"	4	4	Do. 4½ p.c. 1st Cum. Pref.	22/—23/
June 16	4½	4½	Do. 4 p.c. 1st Red.Cum.Pref.... ...	19/3—20/3
Mar. 10	3¼	3½	Do. 4½ p.c. 2nd Non.Cum.Pf.... ...	19/ —20/
Aug. 18	6⅝	6⅝	Do. 3½ p.c. Red. Deb....	93 — 98
"	5	5	Uxbridge, &c., 5 p.c.Cap.	120 —125xd
"	5	5	Do. 5 p.c. Pref.	107 —112xd
June 16	5	5	Do. 5 p.c. Perp. Deb.	118 —123
Aug. 4	5	5	Wandsworth Cons.	117 —122
"	4	4	Do. 4 p.c. Pref....	97 —102
June 16	5	5	Do. 5 p.c. Irred. Deb....	122 —127
"	4	4	Do. 4 p.c. Irred. Deb....	95 —100
Aug. 4	5	5	Watford & St. Albans Ord.	116 —121
"	5	5	Do. 5 p.c. Pref.	106 —111
"	5½	5½	Do. 5½ p.c. Pref.	120 —125
"	—	5	Weymouth Ord. (5 p.c. Basic)	92 — 97
Aug. 18	—	10½	Woking District "A" Ord....	180 —190xd
"	—	7·35	Do. "B" Ord....	127 —132xd
Aug. " 4	—	7½	Wolverhampton Cons. Ord.	119 —124
Mar. 31	5	5	York Cons. Ord.	97 —102